



# HT912 HYDRAULIC TRENCHER

**Operation, Safety & Maintenance Instructions**



Online Demonstration Available at: [www.redroo.com/products/trenchers](http://www.redroo.com/products/trenchers)



## **INTRODUCTION**

*Dear Valued Customer*

*Congratulations! You are now the proud owner of the Red Roo Model HT912 Hydraulic Trencher. Please take a moment of your time to look over the following information. Familiarise yourself with the trencher, its characteristics and method of operation. Pay particular attention to the safety and operating instructions.*

*If you have any questions or need any replacement parts in the future please contact us at your convenience on our toll-free phone number 1300 133 767 or [redroo.com](http://redroo.com)*

*You alone know the operational demands and special conditions affecting the equipment in your situation and therefore assume the responsibility for developing, carrying out and enforcing the safety concepts which apply to your own operation to effect the greatest safety for yourself and the people around you.*

*THANK YOU for your patronage, confidence and support in  
Red Roo Commercial Environmental Equipment.*

### **Machine Identification Record:**

Red Roo Customer number \_\_\_\_\_

Machine model number \_\_\_\_\_

Machine serial number \_\_\_\_\_

Engine manufacturer \_\_\_\_\_

Engine model number \_\_\_\_\_

Engine serial number \_\_\_\_\_



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# ABOUT THIS MANUAL

The information contained in this manual has been prepared to assist you in the safe operation, the routine maintenance and general care of your Red Roo product. By following these guidelines, you may look forward to years of reliable service from your Red Roo. Information is categorised and denoted by the following symbols and phrases:



**SAFETY FIRST** Identifies general safety practices.



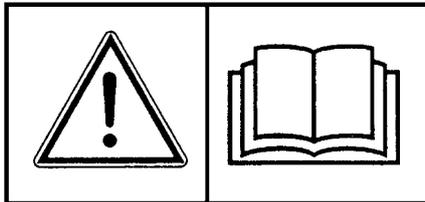
**DANGER!** An instruction which, if not followed, could result in serious or fatal injury.



**WARNING!** An instruction which, if not followed, could result in personal injury.



**CAUTION!** An instruction which, if not followed, could damage machine components.



Before operating this Machine read and observe all Warnings, Cautions and Instructions on the Machine and in the Operators Manual. Although the reading of information contained in this manual does not eliminate the risk involved in operating this machine, your understanding of this information will promote the correct and safe use of your machine. Failure to follow Instructions and Safety Information could result in serious injury or death.

## HAZARD SYMBOLS & MEANINGS



Read



Hearing Protection



Eye Protection



Wear Gloves



Cut Hand



Electrical Shock



Moving Parts



Hot Surfaces



Remove Spark Plug Leads



Toxic Fumes



No Bystanders



High Pressure Fluid



Explosion



Don't Refuel Hot Engine



Check Before Digging

## SAFETY FIRST – Stay Alert, Do Not Get Hurt



### Read this section before use!

The HT912 Hydraulic Trencher is designed to dig trenches and therefore is potentially dangerous. Careless or improper use may cause serious or even fatal injury.

It is important that you read and understand the contents of this manual and that you allow only mature, adult individuals to operate your HT912 Hydraulic Trencher. It is your responsibility to ensure that any individual who operates your Trencher have read and understood this manual.

Never use the Hydraulic Trencher for any other purpose than digging trenches. The machine is designed for this purpose only. Any other use may cause serious or even fatal injury and/or damage to the machine.

# SAFETY PRECAUTIONS FOR HT912 USERS

## Outdoor Power Equipment Institute Recommendations



### WARNING TO PURCHASERS OF INTERNAL COMBUSTION ENGINE EQUIPPED MACHINERY OR DEVICES:

The equipment which you have purchases does not have a spark arrester muffler. If this equipment is to be used on any forest and brush covered land or grass covered unimproved land, the law may require that a spark arrester muffler be installed and be in effective working order. The spark arrester must be attached to the exhaust system and comply with local authorities by-laws.



## USE COMMON SENSE AND PLENTY OF IT

- 1)  **DO NOT** allow any person to operate the hydraulic trencher without first reading and understanding the safety precautions and operating instructions. **KNOW THE CONTROLS AND HOW TO STOP THE HYDRAULIC TRENCHER QUICKLY IN AN EMERGENCY. RELEASE CONTROL LEVER TO STOP THE MACHINE.**
- 2) **NEVER** allow children or untrained adults to operate the hydraulic trencher.
- 3) **ALWAYS** wear protective clothing when operating the hydraulic trencher. This includes, but is not limited to: safety glasses, hard hat, loose fitting gloves, steel capped boots and hearing protection. **NEVER** wear loose fitting clothing or jewellery when operating the hydraulic trencher. Keep all clothing away from moving parts. Items could become caught in the machine, resulting in injury. 
- 4) **ALWAYS** use hydraulic trencher in a well lit area.
- 6)  **NEVER** operate hydraulic trencher on a slope that exceeds 15°. Trenching on an incline is dangerous and not recommended.
- 7)  Police the area before trenching. Remove any foreign objects in the trenching area eg bricks, rocks, wire and sticks. Locate and mark any sprinkler heads, water pipes, gas lines, electrical and telephone cables or any other hazard either below or above ground.
- 8)  **DO NOT** allow other persons near the hydraulic trencher. It is up to the operator to keep bystanders and animals a minimum of 6 metres (18ft) away from the machine while in operation.
- 9) **NEVER** operate the hydraulic trencher when fatigued. **ALWAYS BE ALERT!** If you get tired while operating the hydraulic trencher, take a break. If you have any type of physical or mental condition that may be aggravated by strenuous work, check with your physician before you operate this equipment. **NEVER** operate the hydraulic trencher under the influence of medication, alcohol or drugs.
- 10)  **ALWAYS KEEP YOUR HANDS, FEET AND BODY AWAY FROM THE TRENCHING AREA WHILE ENGINE IS RUNNING.**
- 11) **DO NOT** leave the machine unattended while the engine is running.
- 12) **DO NOT** overspeed the engine or alter the governor settings. Excessive speed is dangerous and will shorten engine life.
- 13)  **WARNING:** Keep away from exhaust muffler during or soon after operation.
- 14)  **NEVER** operate the hydraulic trencher in an enclosed area. Engine exhaust contains carbon monoxide, an odourless and tasteless poison.
- 15)  **WARNING:** Hydraulic oil is under extreme pressure and can get under skin and burn or poison. Do not operate unit with leaking or faulty hose connections or worn, cut hydraulic lines.
- 16)  **STOP** the engine and disconnect the spark plug lead(s) and allow engine to cool before inspecting or performing maintenance on the hydraulic trencher.
- 17)  **REFUELLING**
  - \* Shut off engine. **DO NOT REFUEL AN ENGINE WHILE OPERATING!**
  - \* Allow engine to cool. Minimum 5 minutes.
  - \* **USE UNLEADED FUEL ONLY. Use clean, fresh unleaded fuel.**
  - \* **Do not mix oil with unleaded fuel.**
  - \* Do not over-fill fuel tank. Allow space for fuel expansion.
  - \* Do not smoke near equipment.
  - \* Allow no naked flame or hot material in refuelling area.
  - \* Use only approved fuel containers and funnels. Remember, fuel is a potential hazard.
  - \* Refer to engine owners manual for full details.



# OPERATING INSTRUCTIONS - HT912

## READ SAFETY INSTRUCTIONS BEFORE OPERATING!

Be sure that the engine oil, fuel and hydraulic oil are at proper levels before starting the engine.

## STUDY AND UNDERSTAND CONTROLS BEFORE BEGINNING OPERATION

## TRANSPORT

1. Remove the hydraulic trencher from its trailer. Use caution. 

## BEFORE USE

- 1)  Police the area. Remove any foreign objects from the area.
- 2)  Identify and mark the location of sprinkler heads, gas pipes, telephone cables, etc.

## OPERATION

- 1) Familiarize yourself with the hydraulic trencher and its controls.
- 2) **FREE WHEEL HUB FEATURE** - Operation: Pull one free wheeling pin slightly, using the split ring. Rotate the pin until the 3mm (1/8") diameter roll pin aligns with the slot in the mounting plate. Allow the pin to slide through the slot. Repeat for the other wheel. Roll the trencher until each pin drops into a hole in the hub. The wheel hubs are now locked. Reverse the procedure to unlock the wheels.



**IGNITION:** Must be in "ON" position to start. "OFF" to stop.

**ENGINE:** Throttle cable controls engine speed. Operate at full throttle (all the way forward).

**WHEEL DRIVE CONTROL LEVER:** Controls wheel speed forward or reverse after clutch lever is engaged.

**DIGGING BOOM CONTROL LEVER:** Raises and lowers the digging boom.

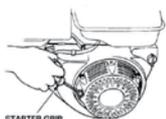
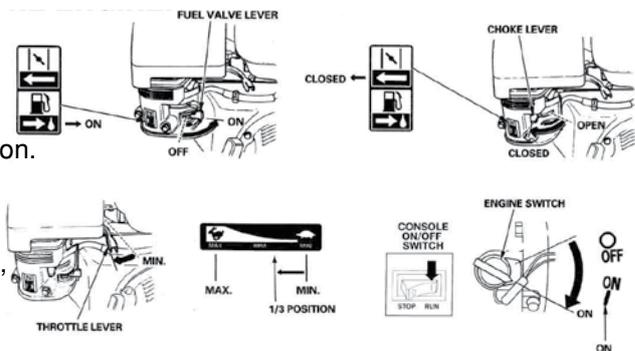
**DIGGING CHAIN CONTROL LEVER:** must be in "ON" position BEFORE clutch lever is depressed in order to start chain in motion. Chain moves in a forward direction after clutch lever is engaged.

**FORWARD/REVERSE DIGGING CHAIN CONTROL LEVER:** Allows manual operation of chain in forward or reverse rotation to dislodge objects or dig difficult terrain. (This control can be used with the clutch lever released.) To reverse chain, DIGGING CHAIN control must be in "OFF" position.

**SAFETY CLUTCH LEVER/OPERATOR PRESENCE CONTROL:** (At left handle grip as the operator stands behind the machine) in the operator position. Activates WHEEL DRIVE and DIGGING CHAIN controls when depressed. Stops all motion when released.

### 3. STARTING THE ENGINE:

- a. Move the fuel valve lever to ON position.
- b. To start a cold engine, move the choke lever or choke rod (applicable types) to the CLOSED position. To restart a warm engine, leave the choke lever or choke rod in the OPEN position.
- c. Move the throttle lever away from the MIN position, about 1/3 of the way toward the MAX position.
- d. Turning the engine switch to the ON position.



### RECOIL STARTER

Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently.





# OPERATING INSTRUCTIONS - HT912

## 4. GETTING STARTED

- a. Start and warm up engine.
- b. Put Wheel Drive Control Lever in neutral.
- c. One wheel hub may be disengaged (free wheeling) for easier steering before driving machine to work location. (See Wheel Hub Feature)
- d. Squeeze the Safety Clutch Lever/Operator Presence Control and change the Wheel Direction Control to desired speed and direction.
- e. Adjust the wheel speed and navigate the trencher to starting position. The trencher is designed to dig toward the operator (with the Wheel Drive Control Lever in Reverse). With this in mind, position the machine to start the trench.

**NOTE** When initially engaging the rotating chain into the ground, be aware that in hard or rocky ground the rotating trencher chain may aggressively dig in and lurch forward. For this reason, make sure that there is sufficient clearance from structures, objects or people in front of the machine

## 5. TRENCHING PROCEDURE

**Make sure that there is sufficient clearance from structures, objects or people in front of the machine.**

- a. Put Wheel Drive Lever in neutral.
- b. Be sure both hubs are engaged (turn hub lock handle clockwise). (See Free Wheel Hub Features)
- c. Have engine at full throttle (forward).
- d. Hold Digging Chain Control Lever in ON position.
- e. Squeeze safety Clutch Lever/Operator Presence Control.
- f. Slowly lower the digging boom until the desired trench depth is achieved, using the Digging Boom Control Lever.
- g. Put Wheel Drive Control Lever in reverse. Start at slow speed.
- h. Adjust the wheel speed until a workable speed is reached. Use a very slow speed for trenching and adjust for soil conditions as necessary. If objects such as rocks or roots jam in the chain, release the Safety Clutch Lever/Operator Presence Control, then reverse the chain to dislodge the debris. If necessary move the trencher forward a few inches and trench the area again.



**WARNING! – KEEP HANDS AND FEET CLEAR OF ALL MOVING PARTS AT ALL TIMES!**

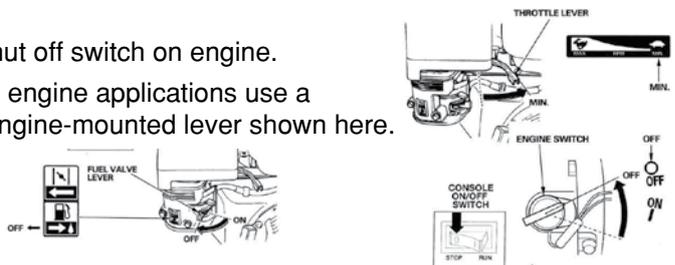
6.  **WARNING! – IN CASE OF DIFFICULTY, RELEASE THE SAFETY CLUTCH LEVER CONTROL/ OPERATOR PRESENCE CONTROL. ALL TRENCHING ACTION STOPS.**

**Turn the engine "STOP" button located either on the main control console or the engine.**

## 7. STOPPING THE ENGINE:

Shut off switch on console should be used, not shut off switch on engine.

- a. Move the throttle lever to the MIN position. Some engine applications use a remote-mounted throttle control rather than the engine-mounted lever shown here.
- b. Turn the engine switch to the OFF position.
- c. Turn the fuel valve lever to the OFF position.



## AFTER USE

- 1)   Turn fuel shut off valve to the "OFF" position.
- 2)   Allow machine to cool down.
- 3) Wash mud and dirt off of the hydraulic trencher. Ensure no water enters the carburettor.
- 4) Remove any objects that may have wrapped around the trencher chain or assembly.



# SERVICE INFORMATION

## TRENCHER ASSEMBLY INFORMATION

1. Remove the trencher from shipping crate.  
Install boom onto boom pivot/mount. Push boom on as far as it will go. Be sure adjuster screw is backed out.

## SERVICE INFORMATION

1. Your trencher should arrive with 45 litres of hydraulic fluid in the tank. Check reservoir level using sight glasses on the right side of the tank. If required, add to reserve with tractor transmission hydraulic oil. **(Shell Donax TD Fluid, Castrol Hyspin 68 or comparable).**
2. Recheck oil level after trencher has been run and oil has circulated through wheel and chain motors. Routinely check level thereafter.
3. Change hydraulic oil filter after the first 50 hours of use. Change it every 200 hours thereafter.
4. Add 1 quart of hydraulic oil to reservoir with each filter change.
5. Check all hydraulic fittings for leaks and tighten if necessary.
6. The grease zerk on the chain shaft housing should be greased after every 4 to 8 hours of use. The grease zerk in the front wheel should be greased after every 8 hours of use.
7. Grease zerks on cylinder rod end and boom pivot should be greased daily.
8. Grease zerks on each side of the boom cylinder and on front wheel hub should be greased once a week.
9. Grease zerks on the wheel hubs and hub lock screws should be greased and freewheeled once a week or so, depending upon free wheel use.

**(See page 10 for illustrations of lubrication point).**

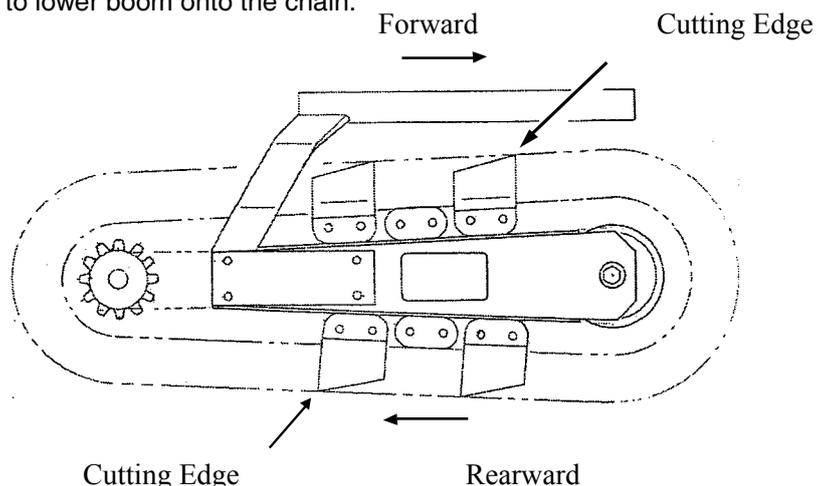
**IMPORTANT:** The engine on the RED ROO trencher may or may not have been serviced prior to shipping. Shipping regulations may prohibit shipping with fuel or oil in the machine. Check levels and add oil and fuel as required before starting. Service accordingly to the engine manual before starting.

**WARNING:** Running the trencher without hydraulic oil will cause serious damage to the hydraulic pump.

**MAKE SURE THAT THE RESERVOIR OIL LEVEL IS TO THE SIGHT GLASS BEFORE STARTING THE MACHINE**

## CHAIN INSTALLATION

1. After break in, stop engine. Slide chain under sprocket, with teeth in correct cutting direction. Properly installed, the cutting edges of the chain will face forward on the top of the boom and rearward on the bottom of the boom. (see diagram below).
2. Push digging boom control lever forward to lower boom onto the chain.
3. Wrap chain around boom and sprocket. Install chain master link or link pin.
4. Use boom adjuster screw to tighten chain. Chain should have enough slack to allow approximately 1" to 2" of space between middle of boom and chain when boom and chain are straight out in a horizontal position.
5. Tighten adjuster screw locknut.

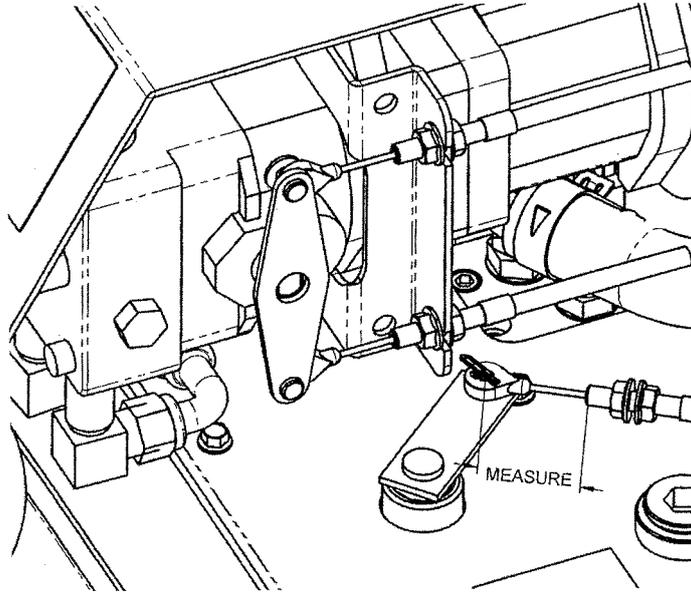


# WHEEL DRIVE VALVE CABLE ADJUSTMENT



The clutch cable and lever must have some free play. The cable will stretch and occasionally needs adjustment.

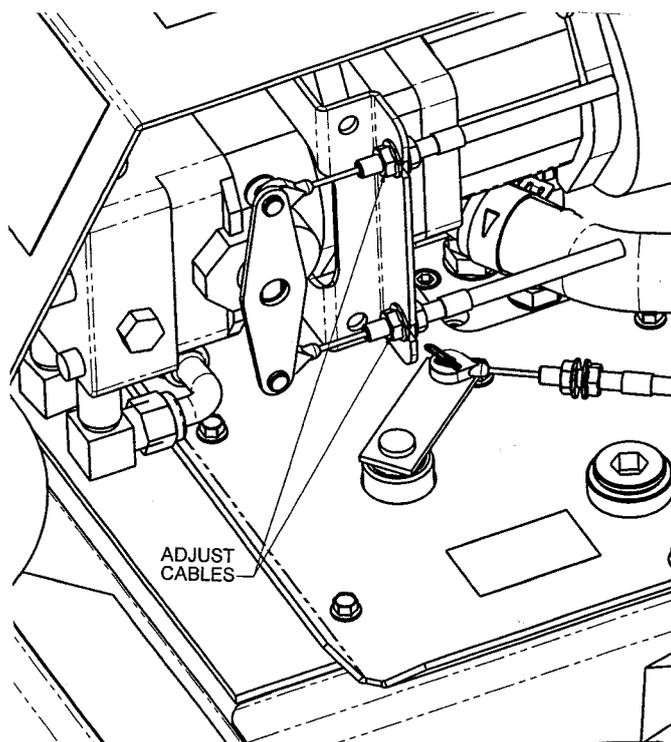
1. Rotate the actuator arm clockwise, by hand, to take up any free play. Measure the distance from the pin of the actuator arm to the end of the cable housing.
2. Pull the clutch level all the way up until it touches the handle bar grip. With the lever pulled up, again measure the distance from the pin of the lever to the cable housing. Calculate the difference.
3. Adjust the cable for 7/16" to 1/2" movement of the actuator arm at the pin. Do not include any level free play in the measurements.



# WHEEL DRIVE NEUTRAL ADJUSTMENT

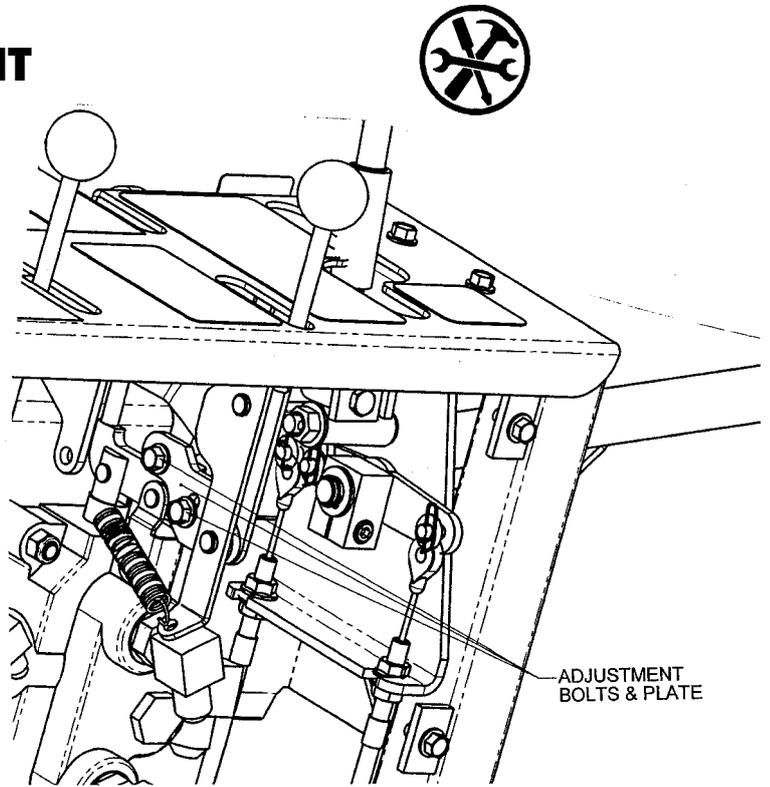


The speed control cables may need to be adjusted after some use. If the machine creeps while the speed control is in neutral, the speed cables will need adjustment. Adjust the cables to bring the pump cable arm to the neutral position (vertical) when the speed control also is in neutral. Adjust the cables to eliminate slack, but do not over tighten them so they are extremely tight against each other.



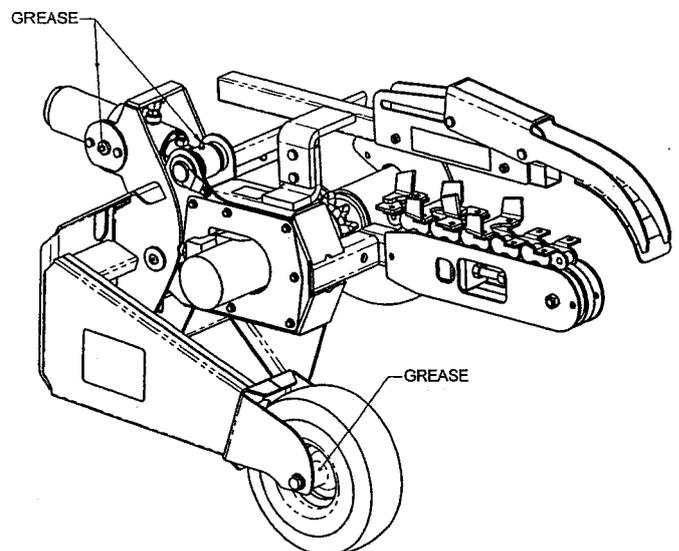
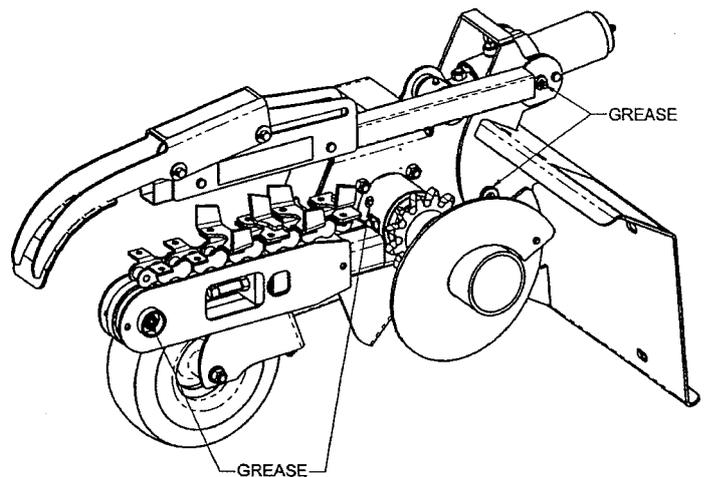
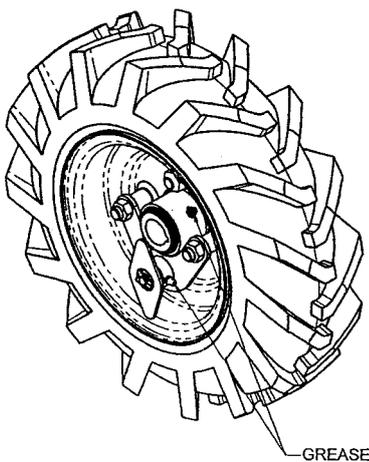
# CHAIN VALVE ADJUSTMENT

The clutch valve control should be adjusted to completely activate the chain valve when the dig chain control is in 'ON' position. To check this adjustment, put the chain on/off control in ON position. Pull the clutch lever on left handle bar up until it touches the handgrip. While holding clutch lever up, push on the chain forward/neutral/reverse lever. It should be at the end of its stroke, thus not move down anymore. If the chain F/N/R lever can be pushed down more, the valve spool lever should be adjusted. To adjust, remove back cover from the control panel. Loosen the 2 bolts on the valve lever and rotate the lever plate down about 1/16". Re-tighten the bolts and check the lever stroke. Adjust so the valve lever comes to the end of its stroke just as the clutch lever touches the handgrip when chain valve control is in ON position.



# DAILY LUBRICATION REQUIREMENTS

Be sure to grease all lubrication points as outlined in this manual.



# HT912 TRENCHER TROUBLE SHOOTING GUIDE

CAUTION!! Always use extreme care when trouble shooting or making adjustments on trencher. Stay clear of chain and auger when engine is running. Stop engine before disassembling any component.

## **A. Entire hydraulic system does not operate and the engine is not under load.**

- |   |  |
|---|--|
| 1. Broken or improperly adjusted clutch (actuator) cable. | See clutch cable and actuator arm adjustment.                                |
| 2. Low hydraulic oil in tank                              | Add oil until it shows in sight gauge  |
| 3. Hydraulic pump-to-engine coupler has slipped           | Check for wear and replace both coupler halves and rubber spider, as needed. |

## **B. Engine lugs down or dies and wheels and chain do not turn.**

- |  |   |
|--|---|
| 1. Rocks or other obstructions stopping chain.             | Reverse chain momentarily to free from obstruction. Raise boom and stop chain. See if obstruction can be removed from trench. |
| 2. Trenching depth or speed too great for soil conditions. | Decrease ground speed or trenching depth.   |
| 3. Engine improperly tuned or maintained.                  | See engine manual and correct as needed.  |
| 4. Low oil alert causes engine to shut down.               | This may occur when trenching on hills. Level trencher, check oil and allow oil alert to reset.                               |
| 5. Engine losing power due to wear.                        | See engine manual.  |

## **C. Chain fails to rotate, but wheel drive works.**

- |  |  |
|--|--|
| 1. Chain motor worn.                         | Rebuild motor or replace with exchange motor                       |
| 2. Chain Control Relief Valve Malfunctioning | Adjust Relief Valve to 2200psi or replace relief spring if needed. |

## HT912 TRENCHER TROUBLE SHOOTING GUIDE (CONT.)

### D. Wheel fails to turn, but chain rotates.

- |  |                                       |
|--|---------------------------------------|
| 1. Hub unlocked                          | Lock the hubs.                        |
| 2. Wheel axle key sheared                | Replace key and other parts as needed |
| 3. Wheel Drive Valve not fully activated | Adjust valve cable                    |
| 4. Speed cable broken or disconnected    | Replace or re-connect cable           |
| 5. Pump Cable Lever loose on shaft       | Tighten setscrew on Pump Lever        |

### E. Oil leaks in hydraulic system.

- |                                    |  |
|------------------------------------|--|
| 1. Fittings are loose              | Tighten fittings on hoses and adapters   |
| 2. Worn or broken hoses            | Replace damaged hoses  |
| 3. Oil around chain motor or shaft | Inspect motor for leaking shaft seal.<br>Rebuild motor or replace with exchange motor. |

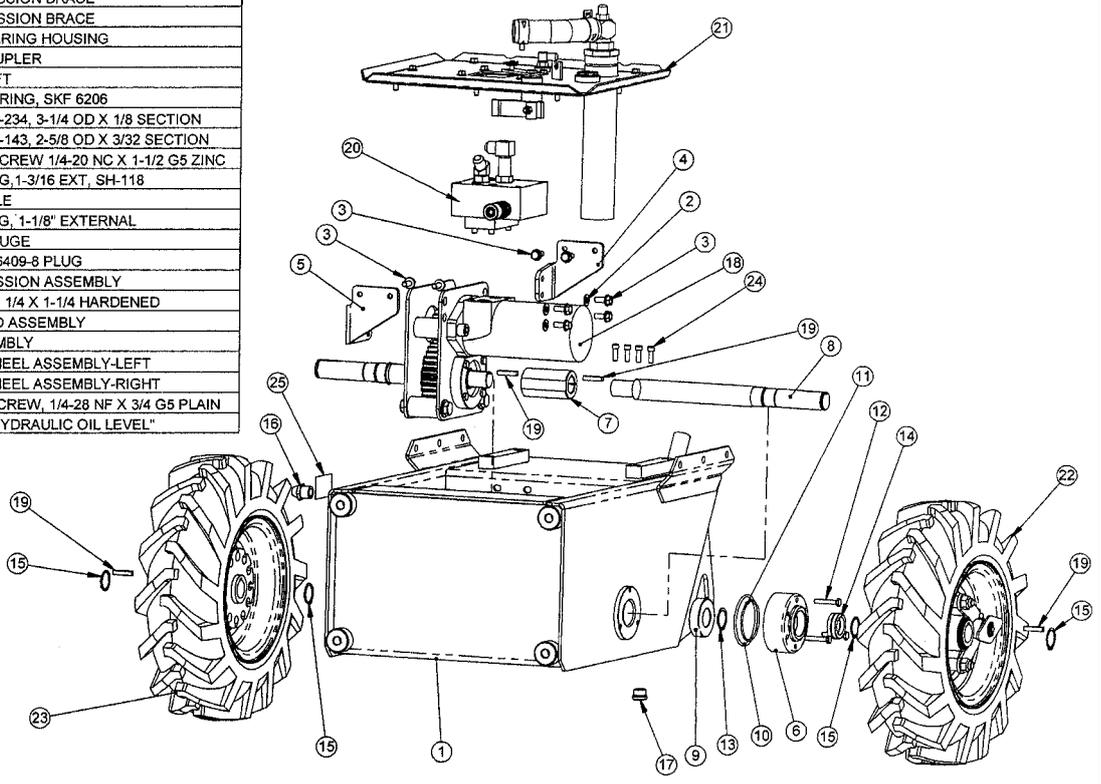
### F. Foaming hydraulic oil coming from breather hose.

- |                       |  |
|-----------------------|--|
| 1. Improper oil used. | Verify that hydraulic oil used had antifoaming additives. Recommended oil is tractor hydraulic. (Shell Donax TD or comparable) |
|-----------------------|--|

### G. Boom does not lift, or does not lower into ground.

- |  |  |
|--|--|
| 1. Boom lift relief valve malfunctioning | Adjust relief to 500 psi. This may require a replacement spring in valve |
|--|--|

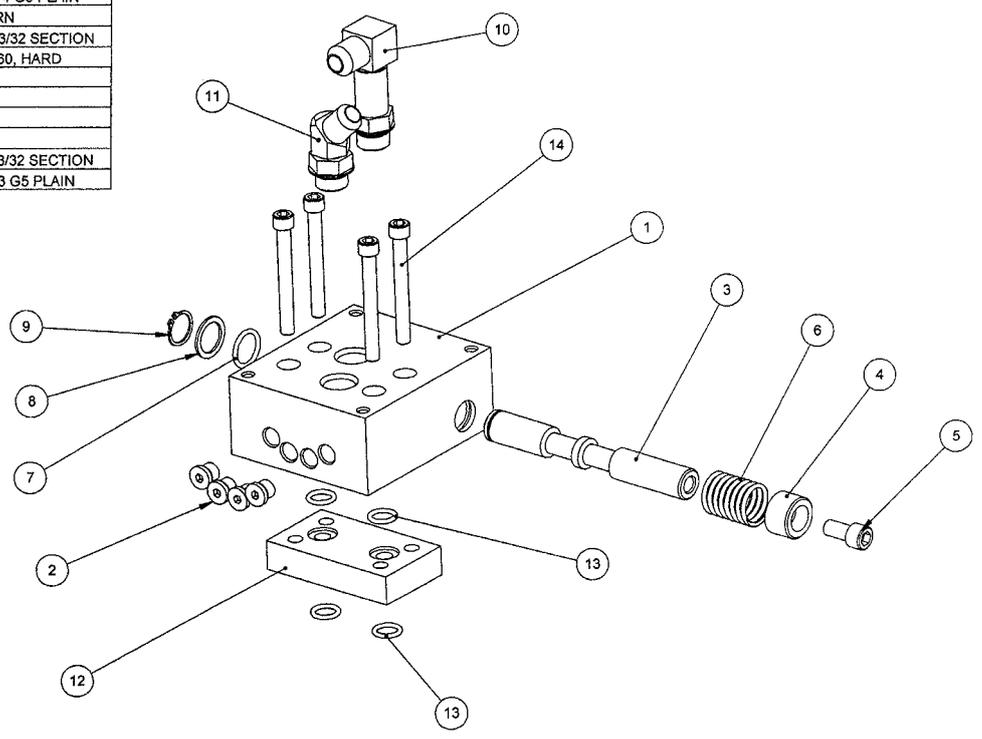
| REF. QTY. | PART NO. | DESCRIPTION                                  |
|-----------|----------|--|
| 1         | 1        | 10232 BODY                                   |
| 2         | 4        | 05068 WASHER, 5/16 SAE ZINC                  |
| 3         | 6        | 05140 WHIZ LOCK, 5/16 X 3/4                  |
| 4         | 1        | 10238 TRANSMISSION BRACE                     |
| 5         | 1        | 10240 TRANSMISSION BRACE                     |
| 6         | 2        | 10174 AXLE BEARING HOUSING                   |
| 7         | 1        | 03014TR AXLE COUPLER                         |
| 8         | 1        | 10231 AXLE, LEFT                             |
| 9         | 2        | 03280 BALL BEARING, SKF 6206                 |
| 10        | 2        | 03000 O-RING, 2-234, 3-1/4 OD X 1/8 SECTION  |
| 11        | 2        | 10211 O-RING, 2-143, 2-5/8 OD X 3/32 SECTION |
| 12        | 6        | 05088 HH CAP SCREW 1/4-20 NC X 1-1/2 G5 ZINC |
| 13        | 2        | 05034 SNAP RING, 1-3/16 EXT, SH-118          |
| 14        | 4        | 03012 SEAL, AXLE                             |
| 15        | 4        | 05606 SNAP RING, 1-1/8" EXTERNAL             |
| 16        | 1        | 03503 SIGHT GAUGE                            |
| 17        | 1        | 10361 FITTING, 6409-8 PLUG                   |
| 18        | 1        | 00268 TRANSMISSION ASSEMBLY                  |
| 19        | 4        | 05018 KEY, 1/4 X 1/4 X 1-1/4 HARDENED        |
| 20        | 1        | 00249 MANIFOLD ASSEMBLY                      |
| 21        | 1        | 00267 LID ASSEMBLY                           |
| 22        | 1        | 00227 HUB & WHEEL ASSEMBLY-LEFT              |
| 23        | 1        | 00225 HUB & WHEEL ASSEMBLY-RIGHT             |
| 24        | 4        | 05235 SH CAP SCREW, 1/4-28 NF X 3/4 G5 PLAIN |
| 25        | 1        | 03040-57 DECAL, "HYDRAULIC OIL LEVEL"        |



**RED ROO**  
Commercial Environmental Equipment

TITLE: BODY ASSEMBLY  
PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
SCALE: 1:8 SHEET 1 OF 1 DWG# 00247

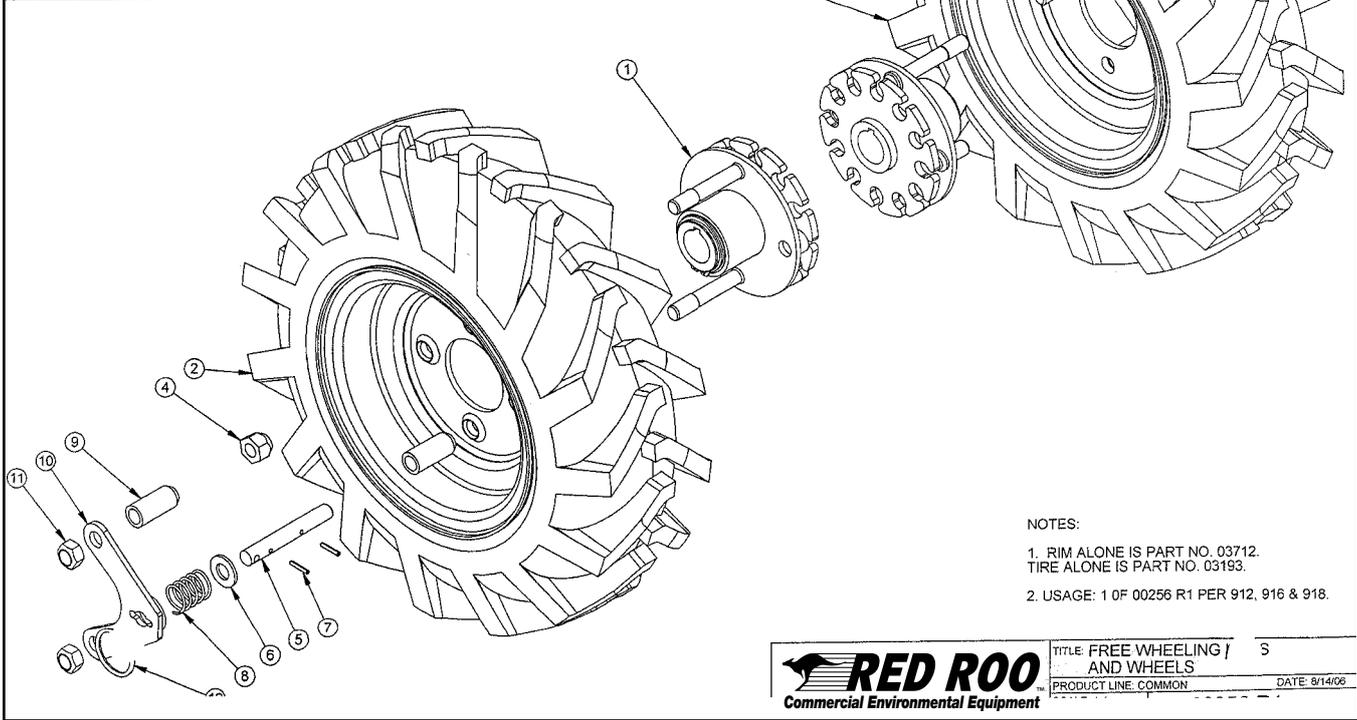
| REF. QTY. | PART NO. | DESCRIPTION                                     |
|-----------|----------|---|
| 1         | 1        | 02200 MANIFOLD, WHEEL MOTOR                     |
| 2         | 4        | 03300 FITTING, 6409-4 PLUG                      |
| 3         | 1        | 02201 SPOOL, DRIVE DUMP                         |
| 4         | 1        | 10236 SPOOL SPACER                              |
| 5         | 1        | 10237 SH CAP SCREW, 3/8-16 NC X 3/4 G5 PLAIN    |
| 6         | 1        | 03055 SPRING, VALVE SPOOL RETURN                |
| 7         | 1        | 03225 O-RING, 2-116N70, 15-16 OD X 3/32 SECTION |
| 8         | 1        | 03200 THRUST WASHER, .75 X 1 X .060, HARD       |
| 9         | 1        | 05216 SNAP RING, 3/4 EXTERNAL                   |
| 10        | 1        | 04533 FITTING, 6801-8-LL                        |
| 11        | 1        | 04210 FITTING, 6802-8-8                         |
| 12        | 1        | 02203CT MANIFOLD SPACER                         |
| 13        | 4        | 03226 O-RING, 2-112N70, 11/16 OD X 3/32 SECTION |
| 14        | 4        | 05238 SH CAP SCREW, 5/16-18 NC X 3 G5 PLAIN     |



**RED ROO**  
Commercial Environmental Equipment

TITLE: MANIFOLD ASSEMBLY  
PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
SCALE: 1:3 SHEET 1 OF 1 DWG# 00249

| REF. QTY. | PART NO. | DESCRIPTION                                     |
|-----------|----------|---|
| 1         | 2        | 02269-HUB WHEEL HUB ASSY, 1-1/8" BORE           |
| 2         | 1        | 03190-FW TIRE & RIM, FREE WHEELING, LEFT HAND   |
| 3         | 1        | 03191-FW TIRE & RIM, FREE WHEELING, RIGHT HAND  |
| 4         | 2        | 05042 NUT, LUG, 1/2-20 NF                       |
| 5         | 2        | 02068 PIN, FREE WHEELING                        |
| 6         | 2        | 05102 WASHER, 1/2 SAE ZINC HARDENED             |
| 7         | 4        | 05548 ROLL PIN (SLOTTED SPRING), 1/8 X 3/4 ZINC |
| 8         | 2        | 03352 SPRING, CENTURY 3385                      |
| 9         | 4        | 02083 SPACER, WHEEL                             |
| 10        | 2        | 01077 MOUNTING PLATE, PIN, FREE WHEELING        |
| 11        | 4        | 05076 NUT, GRIPCO, 1/2-20 NF                    |
| 12        | 2        | 03550 SPLIT RING-27                             |

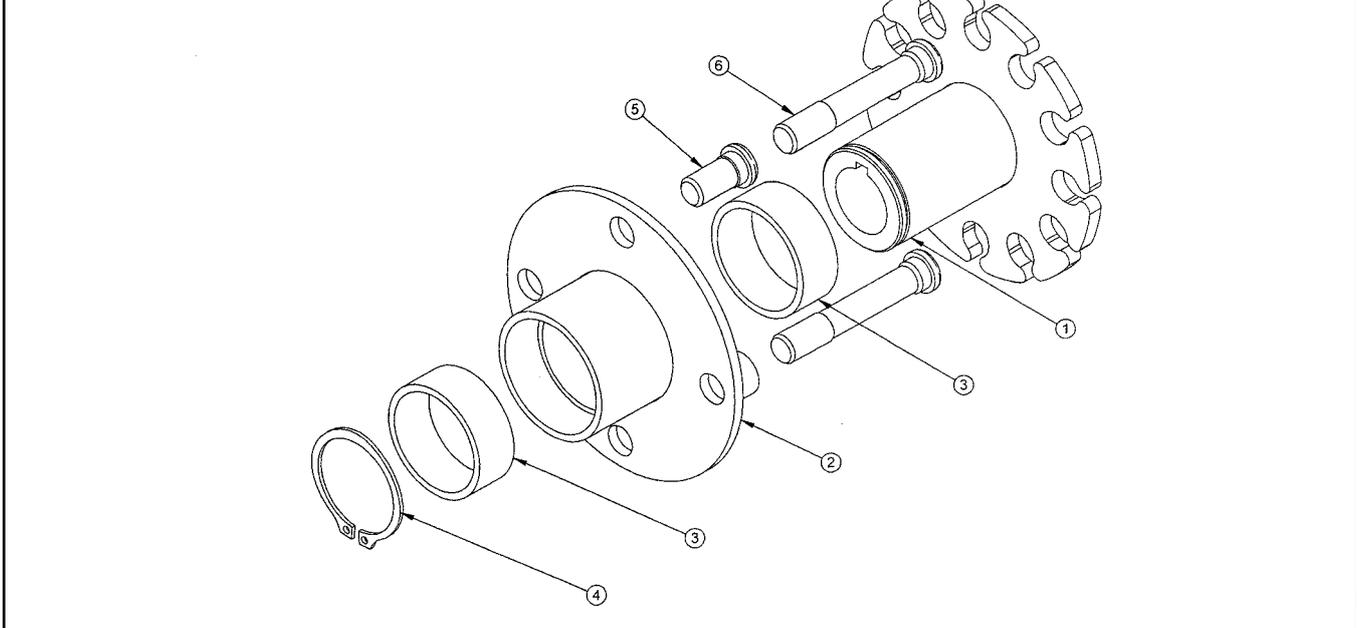


NOTES:  
 1. RIM ALONE IS PART NO. 03712.  
 TIRE ALONE IS PART NO. 03193.  
 2. USAGE: 1 OF 00256 R1 PER 912, 916 & 918.

**RED ROO**  
 Commercial Environmental Equipment

TITLE: FREE WHEELING / AND WHEELS S  
 PRODUCT LINE: COMMON DATE: 8/14/06

| REF. QTY. | PART NO. | DESCRIPTION                                    |
|-----------|----------|--|
| 1         | 1        | 02269 WHEEL HUB                                |
| 2         | 1        | 01252 FREE WHEEL HUB                           |
| 3         | 2        | 03168 BUSHING, SLEEVE, NYLON, IGUS MSI-2832-12 |
| 4         | 1        | 05610 SNAP RING, SH-175, 1-3/4" EXTERNAL       |
| 5         | 1        | 05066 KNURLED STUD, 1/2-20 UNF X 1, G8         |
| 6         | 2        | 05166 KNURLED STUD, 1/2-20 UNF X 3, G8         |

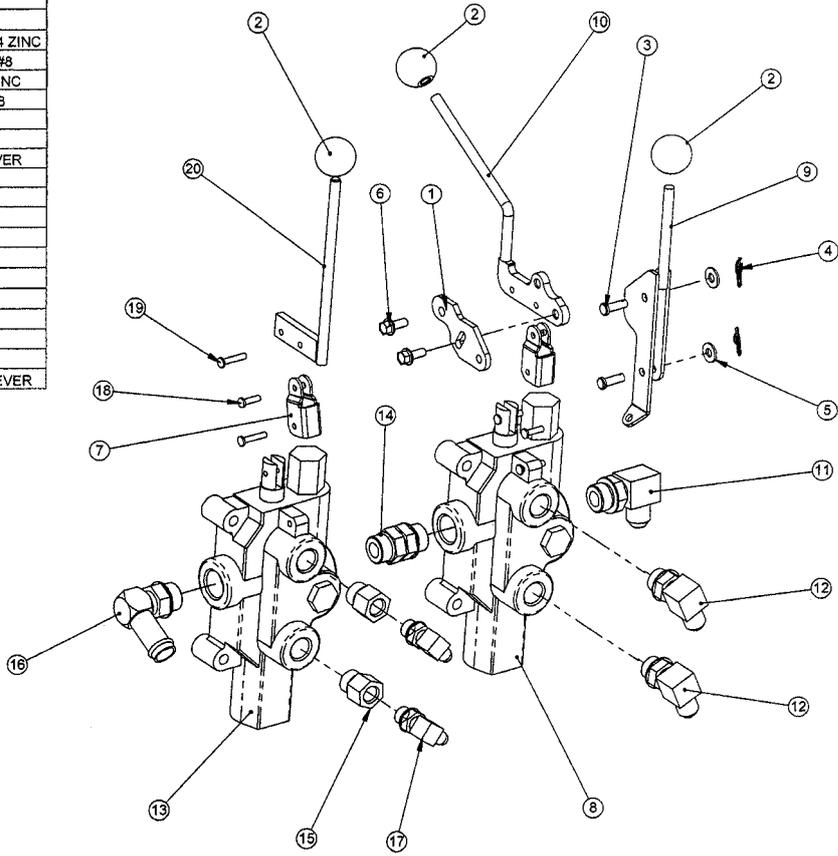


NOTES:  
 1. USAGE: 2 PER 00231 R3, 00256 R1, & 10188.  
 1 OF 00231 R3 PER 1318.  
 1 OF 00256 R1 PER 912, 916 & 918.  
 1 OF 10388 PER 1320 & 1620.

**RED ROO**  
 Commercial Environmental Equipment

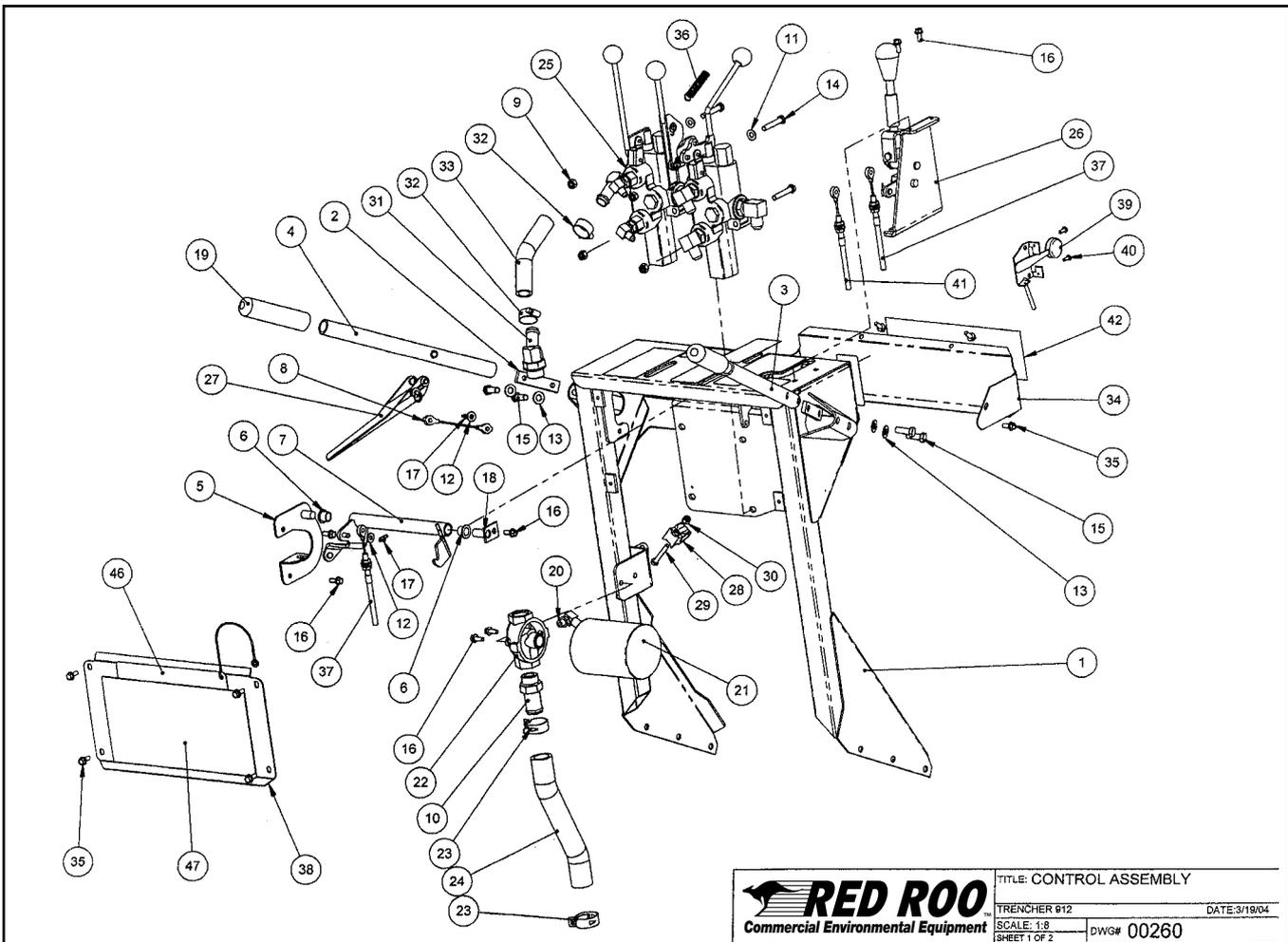
TITLE: WHEEL HUB ASSY, 1-1/8" BORE  
 PRODUCT LINE: COMMON DATE: 1/25/06

| REF. QTY. | PART NO. | DESCRIPTION                      |
|-----------|----------|----------------------------------|
| 1         | 1        | 10337 VALVE ROCKER               |
| 2         | 3        | 03026 KNOB, 5/16-NC              |
| 3         | 2        | 10345 CLEVIS PIN, 1/4 X 3/4 ZINC |
| 4         | 2        | 05038 RUE RING COTTER #8         |
| 5         | 2        | 05081 WASHER, 1/4 SAE ZINC       |
| 6         | 2        | 05069 WHIZ LOCK, 1/4 X 5/8       |
| 7         | 2        | 03509 VALVE LINK W/PINS          |
| 8         | 1        | 04513 VALVE RD-2508-M4           |
| 9         | 1        | 10335 VALVE ENGAGE LEVER         |
| 10        | 1        | 10330 VALVE LEVER                |
| 11        | 1        | 04211 FITTING, 6801-8-10         |
| 12        | 2        | 04554 FITTING, 6801-8-8          |
| 13        | 1        | 04512 VALVE RD-2508-T4           |
| 14        | 1        | 04521 FITTING, 6407-10-10        |
| 15        | 2        | 04529 FITTING, 6410-8-6          |
| 16        | 1        | 04523 FITTING, 4601-12-10        |
| 17        | 2        | 04527-01 FITTING, 6801-4-6       |
| 18        | 2        | 03509S LEVER PIN                 |
| 19        | 4        | 03509L SPOOL PIN                 |
| 20        | 1        | 10553 CYLINDER VALVE LEVER       |



**RED ROO** Commercial Environmental Equipment

TITLE: CONTROL VALVE ASSEMBLY  
 PRODUCT LINE: TRENCHER 612 DATE: 3/10/04  
 SCALE: 1:4 DWG# 00259  
 SHEET 1 OF 1

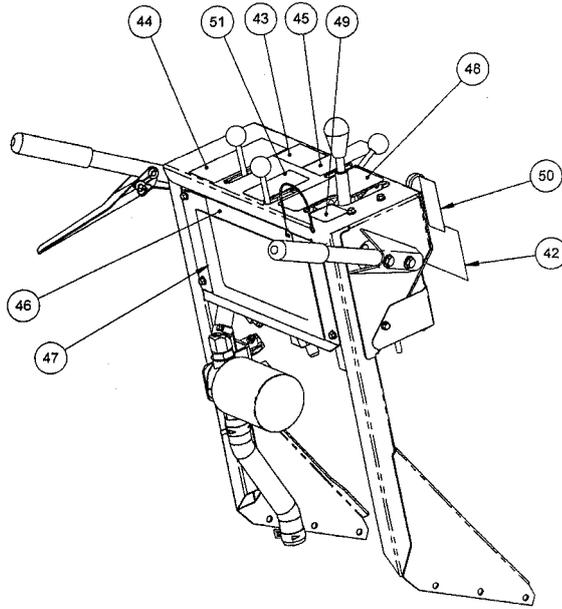


**RED ROO** Commercial Environmental Equipment

TITLE: CONTROL ASSEMBLY  
 TRENCHER 612 DATE: 3/19/04  
 SCALE: 1:8 DWG# 00260  
 SHEET 1 OF 2

| REF. | QTY. | PART NO.    | DESCRIPTION                              |
|------|------|-------------|--|
| 1    | 1    | 10327       | CONTROL POD                              |
| 2    | 2    | 01403       | HANDLE BAR SLUG                          |
| 3    | 1    | 01402-R+    | HANDLE BAR, RH                           |
| 4    | 1    | 01402-L+    | HANDLEBAR, LEFT                          |
| 5    | 1    | 10332       | LINK PIVOT                               |
| 6    | 2    | 03501       | BUSHING, NYLON, IGUS MFI-0810-08         |
| 7    | 1    | 10331       | VALVE LINKAGE                            |
| 8    | 1    | 03505       | CABLE, 4-1/2"                            |
| 9    | 4    | 05273       | NUT, NYLOCK, 5/16-18 NC                  |
| 10   | 1    | 04217       | FITTING, 4604-16-12                      |
| 11   | 4    | 05088       | WASHER, 5/16 SAE ZINC                    |
| 12   | 2    | 05081       | WASHER, 1/4 SAE ZINC                     |
| 13   | 4    | 05101       | WASHER, 3/8 SAE ZINC                     |
| 14   | 4    | 05054       | HH CAP SCREW, 5/16-18 NC X 1-3/4 G5 ZINC |
| 15   | 4    | 05059       | HH CAP SCREW, 3/8-16 NC X 1 G5 ZINC      |
| 16   | 7    | 05069       | WHIZ LOCK, 1/4 X 5/8                     |
| 17   | 2    | 05038       | RUE RING COTTER #8                       |
| 18   | 1    | 10346       | LINKAGE PIVOT                            |
| 19   | 2    | 03032       | HANDLE BAR GRIPS (SOLD IN PAIRS)         |
| 20   | 1    | 04526-01    | FITTING, 6801-6-4                        |
| 21   | 1    | 04213       | FILTER, HYDRAULIC OIL                    |
| 22   | 1    | 04212-OR-TR | OIL FILTER MOUNT                         |
| 23   | 2    | 05225       | CLAMP, 1-1/2" HOSE, CTB-35 ST            |
| 24   | 1    | 10367       | HOSE, RETURN                             |
| 25   | 1    | 00259       | CONTROL VALVE ASSEMBLY                   |
| 26   | 1    | 00273       | SPEED LEVER ASSEMBLY                     |
| 27   | 1    | 01503K      | CLUTCH LEVER KIT                         |
| 28   | 1    | 06423       | STARTER GROMMET                          |
| 29   | 1    | 05556       | HH CAP SCREW, 1/4-20 NC X 1-3/4 G5 ZINC  |
| 30   | 1    | 05096       | NUT, NYLOCK, 1/4-20 NC                   |
| 31   | 1    | 10362       | FITTING, 4603-12-12                      |
| 32   | 2    | 05041       | HOSE CLAMP, 1" SS                        |
| 33   | 1    | 10368       | RETURN HOSE                              |
| 34   | 1    | 10534       | HOSE COVER                               |
| 35   | 8    | 05069       | WHIZ LOCK, 1/4-20 UNC X 5/8              |
| 36   | 1    | 10548       | SPRING LEE LC-051G-9MW                   |
| 37   | 2    | 03514       | CABLE, 40"                               |
| 38   | 1    | 10549       | BACK COVER                               |
| 39   | 1    | 03815-T     | THROTTLE CABLE                           |
| 40   | 2    | 05223       | SCREW #10-24 X 1/2 PH                    |
| 41   | 1    | 03045       | CABLE, 47"                               |
| 42   | 1    | 03040-02    | DECAL, "BARRETO", 3-1/2 X 11-1/4         |
| 43   | 1    | 03341-24    | DECAL, WARNING - NO PARKING              |
| 44   | 1    | 03341-12    | DECAL, DIGGIN BOOM, UP-DOWN              |
| 45   | 1    | 04430-05    | DECAL, DIG CHAIN FWD-N-REV               |
| 46   | 1    | 04          | INSTRUCTION SHEET W/CABLE                |

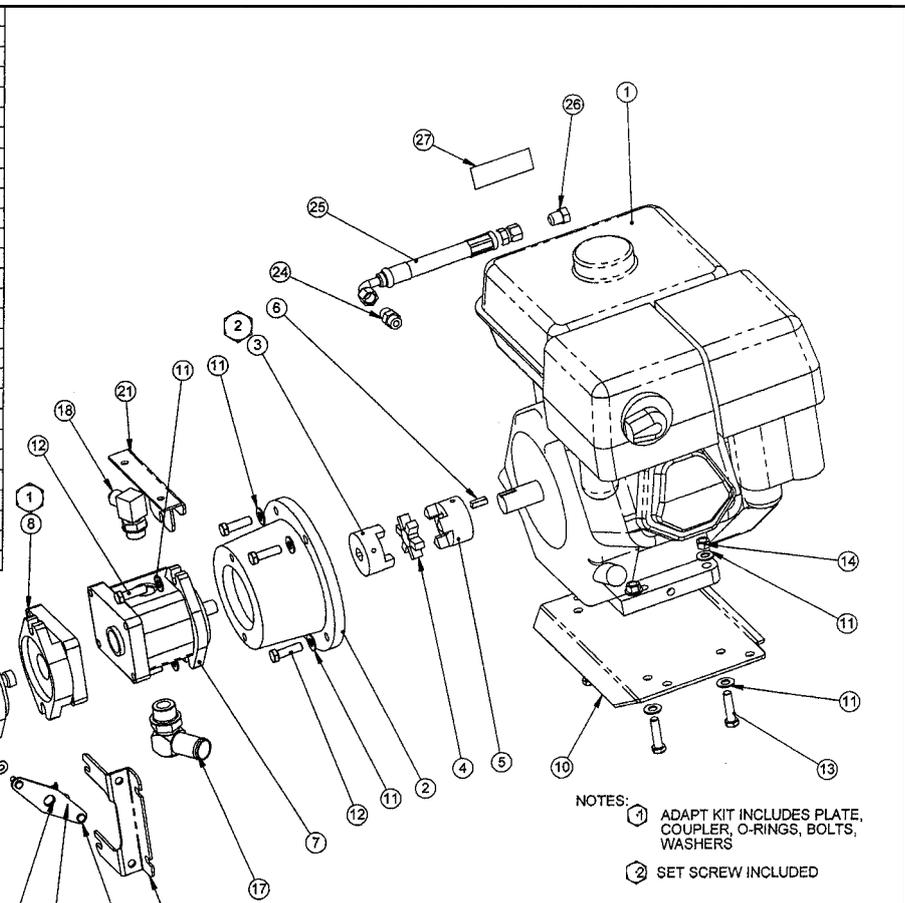
| REF. | QTY. | PART NO. | DESCRIPTION              |
|------|------|----------|--------------------------|
| 47   | 1    | 10590    | INSTRUCTION SHEET HOLDER |
| 48   | 1    | 04440-06 | DECAL, WHEEL DRIVE F-N-R |
| 49   | 1    | 04440-07 | DECAL, REV/TRENCH SYMBOL |
| 50   | 1    | 04440-05 | DECAL, ENGINE SYMBOL     |
| 51   | 1    | 04440-04 | DECAL, DIG CHAIN ON/OFF  |



**RED ROO**  
Commercial Environmental Equipment

TITLE: CONTROL ASSEMBLY  
 PRODUCT LINE: TRENCHER 912      DATE: 3/10/04  
 SCALE: 1:8      DWG# 00260  
 SHEET 2 OF 2

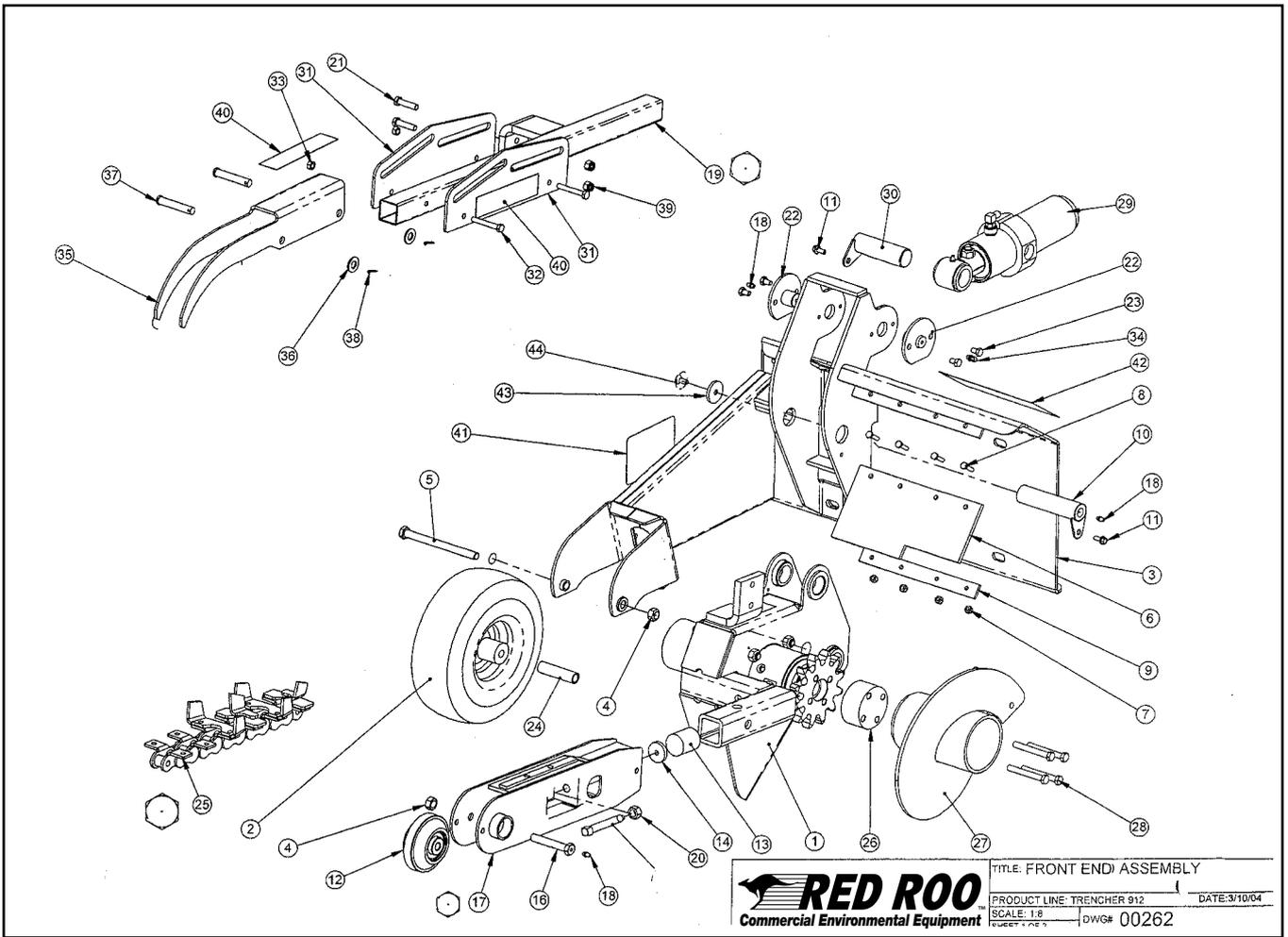
| REF. | QTY. | PART NO. | DESCRIPTION                             |
|------|------|----------|---|
| 1    | 1    | 07006    | ENGINE, 9 HP HONDA GX270                |
| 2    | 1    | 02016    | PUMP ADAPTER                            |
| 3    | 1    | 03021    | JAW COUPLER, PUMP, 5/8" BORE            |
| 4    | 1    | 03022    | SPIDER, RUBBER                          |
| 5    | 1    | 03023    | JAW COUPLER, 1" BORE                    |
| 6    | 1    | 05014    | KEY, 1/4 X 1/4 X 3/4                    |
| 7    | 1    | 04507    | PUMP SNP2-8.5-HSTAT                     |
| 8    | 1    | 04504    | ADAPT PLATE KIT                         |
| 9    | 1    | 04506    | PG HYDROSTAT PUMP .63 CI                |
| 10   | 1    | 10242    | ENGINE MOUNT PLATE                      |
| 11   | 14   | 05101    | WASHER, 3/8 SAE ZINC                    |
| 12   | 6    | 05091    | HH CAP SCREW, 3/8-16 NC X 1-1/4 G5 ZINC |
| 13   | 4    | 05092    | HH CAP SCREW, 3/8-16 NC X 1-1/2 G5 ZINC |
| 14   | 4    | 05269    | NUT, 3/8-16 NC GRB ZINC                 |
| 15   | 1    | 10339    | PUMP CABLE ARM                          |
| 16   | 1    | 10340    | CABLE BRACKET                           |
| 17   | 1    | 04530    | FITTING, 4601-16-12                     |
| 18   | 1    | 04211    | FITTING, 6801-8-10                      |
| 19   | 2    | 04538    | FITTING, 6801-6-6                       |
| 20   | 2    | 04533    | FITTING, 6801-8-8-LL                    |
| 21   | 1    | 10545    | PUMP COVER MOUNT                        |
| 22   | 2    | 05038    | RUE RING COTTER #8                      |
| 23   | 2    | 05081    | WASHER, 1/4 SAE ZINC                    |
| 24   | 1    | 04536    | FITTING, 9067-6-12METRIC                |
| 25   | 1    | 10588    | ENGINE DRAIN HOSE                       |
| 26   | 1    | 04539    | FITTING, 2408-6                         |
| 27   | 1    | 03341-07 | DECAL, "IGNITION OFF/ON"                |



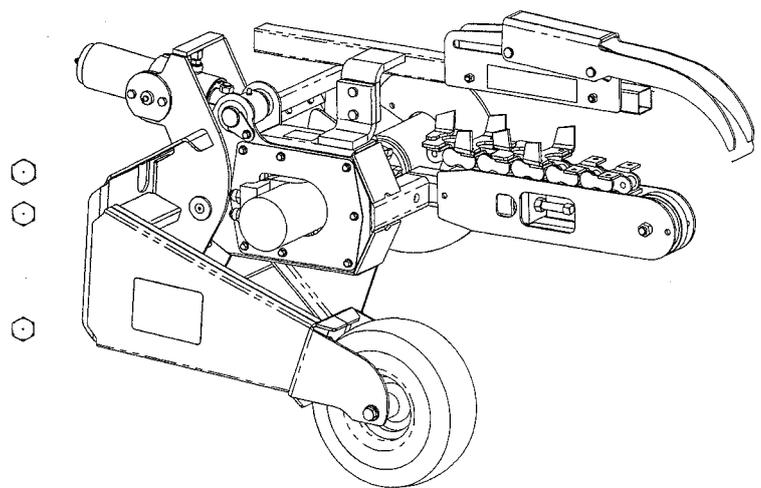
NOTES:  
 ① ADAPT KIT INCLUDES PLATE, COUPLER, O-RINGS, BOLTS, WASHERS  
 ② SET SCREW INCLUDED

**RED ROO**  
Commercial Environmental Equipment

TITLE: ENGINE & PUMPS ASSEMBLY  
 PRODUCT LINE: TRENCHER 912      DATE: 3/17/04  
 SCALE: 1:8      DWG# 00261  
 SHEET 1 OF 1



| REF. | QTY. | PART NO.      | DESCRIPTION                              |
|------|------|---------------|--|
| 1    | 1    | 00264         | MOTOR HOUSING ASSEMBLY                   |
| 2    | 1    | 10347         | FRONT TIRE, FLAT FREE                    |
| 3    | 1    | 10273         | FRONT END MOUNT                          |
| 4    | 2    | 05046         | NUT, GRIPCO, 1/2-13 NC                   |
| 5    | 1    | 05301         | HH CAP SCREW, 1/2-13 NC X 6 G5 ZINC      |
| 6    | 1    | 03903         | FLAP                                     |
| 7    | 4    | 05096         | NUT, NYLOCK, 1/4-20 NC                   |
| 8    | 4    | 05237         | HH CAP SCREW 1/4-20 NC X 1 G5 ZINC       |
| 9    | 1    | 10376         | FLAP KEEPER                              |
| 10   | 1    | 10280         | PIVOT PIN                                |
| 11   | 2    | 05069         | WHIZ LOCK, 1/4-20 UNC X 5/8              |
| 12   | 1    | 00265         | ROLLER ASSEMBLY                          |
| 13   | 1    | 10270         | CUSHION, BOOM                            |
| 14   | 1    | 10318         | CUSHION WASHER                           |
| 15   | 1    | 10319-F       | CHAIN TENSION SCREW                      |
| 16   | 1    | 10320         | ROLLER AXLE                              |
| 17   | 1    | 10316         | BOOM - 12"                               |
| 18   | 3    | 05044         | GREASE ZERK, 1/4-28 UNF                  |
| 19   | 1    | 10325         | BOOM GUARD 12"                           |
| 20   | 1    | 10326         | NUT, 1/2-13 NC G5 ZINC                   |
| 21   | 2    | 05092         | HH CAP SCREW, 3/8-16 NC X 1-1/2 G5 ZINC  |
| 22   | 2    | 10281         | SCREW PIN                                |
| 23   | 4    | 05304         | HH CAP SCREW, 5/16-18 NC X 1/2 G5 ZINC   |
| 24   | 1    | 10458         | SPACER, FRONT AXLE                       |
| 25   | 1    | CHAIN OPTIONS | CHAIN OPTIONS                            |
| 26   | 1    | 10286         | AUGER SPACER                             |
| 27   | 1    | 10287         | AUGER                                    |
| 28   | 4    | 10568         | HH CAP SCREW, 3/8-24 NF X 3 G5 ZINC      |
| 29   | 1    | 00271         | CYLINDER ASSEMBLY                        |
| 30   | 1    | 10546         | CYLINDER ROD PIN                         |
| 31   | 2    | 10564         | CRUMBER MOUNT                            |
| 32   | 2    | 05089         | HH CAP SCREW, 5/16-24 NF X 2-1/4 G5 ZINC |
| 33   | 2    | 10462         | NUT, GRIPCO, 5/16-24 NF                  |
| 34   | 1    | 05307         | GREASE ZERK, 1/4-28 UNF 90°              |
| 35   | 1    | 10567         | CRUMBER ARM                              |
| 36   | 2    | 05102         | WASHER, 1/2 SAE ZINC HARDENED            |
| 37   | 2    | 10586         | CLEVIS PIN, 1/2 X 2-3/4 ZINC             |
| 38   | 2    | 05222         | COTTER PIN 1/8 X 3/4                     |
| 39   | 2    | 05073         | NUT, NYLOCK, 3/8-16 NC                   |
| 40   | 3    | 04440-02      | DECAL; DANGER, BOOM GUARD                |
| 41   | 1    | 04440-03      | DECAL; 912                               |
| 42   | 1    | 03341-05      | DECAL; DANGER, CHAIN                     |
| 43   | 1    | 10626         | PIVOT PIN WASHER                         |
| 44   | 1    | 10627         | C-SINK HD CAP SCR .31 X .75 NC Z         |



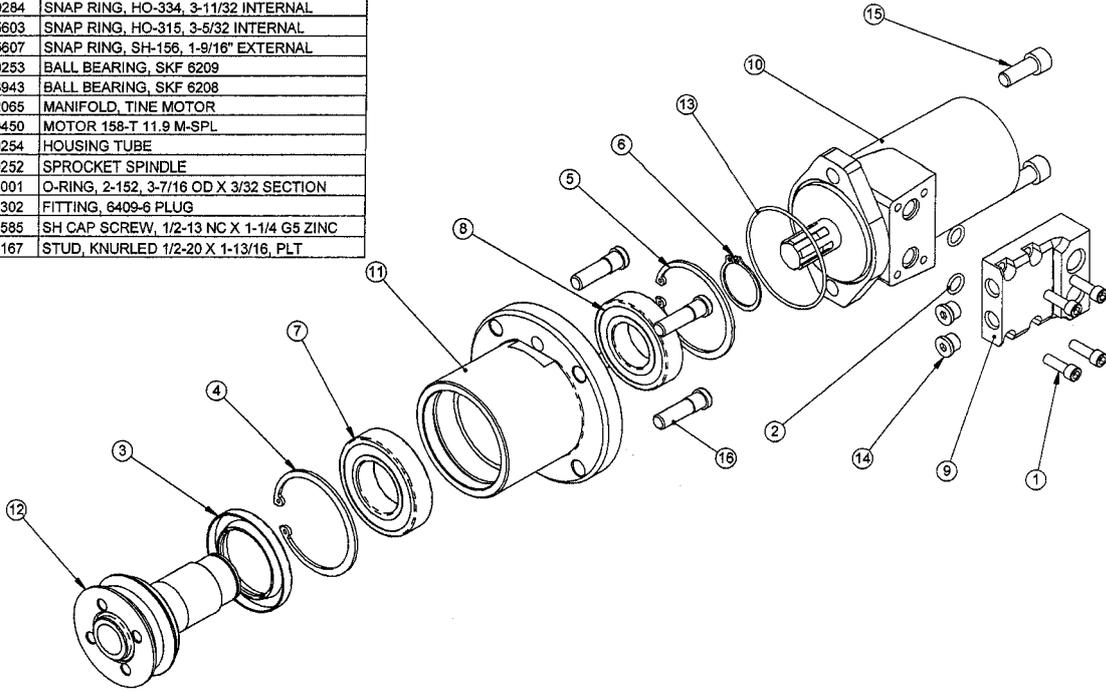
 K12X23SHARK 12" BOOM, CHAIN, GUARD OPTION  
 K18X27SHARK 18" BOOM, CHAIN, GUARD OPTION


**RED ROO**  
 Commercial Environmental Equipment

TITLE: FRONT END ASSEMBLY  
 PRODUCT LINE: TRENCHER 912  
 SCALE: 1:8  
 SHEET 2 OF 2

DATE: 10/21/04  
 DWG# 00262

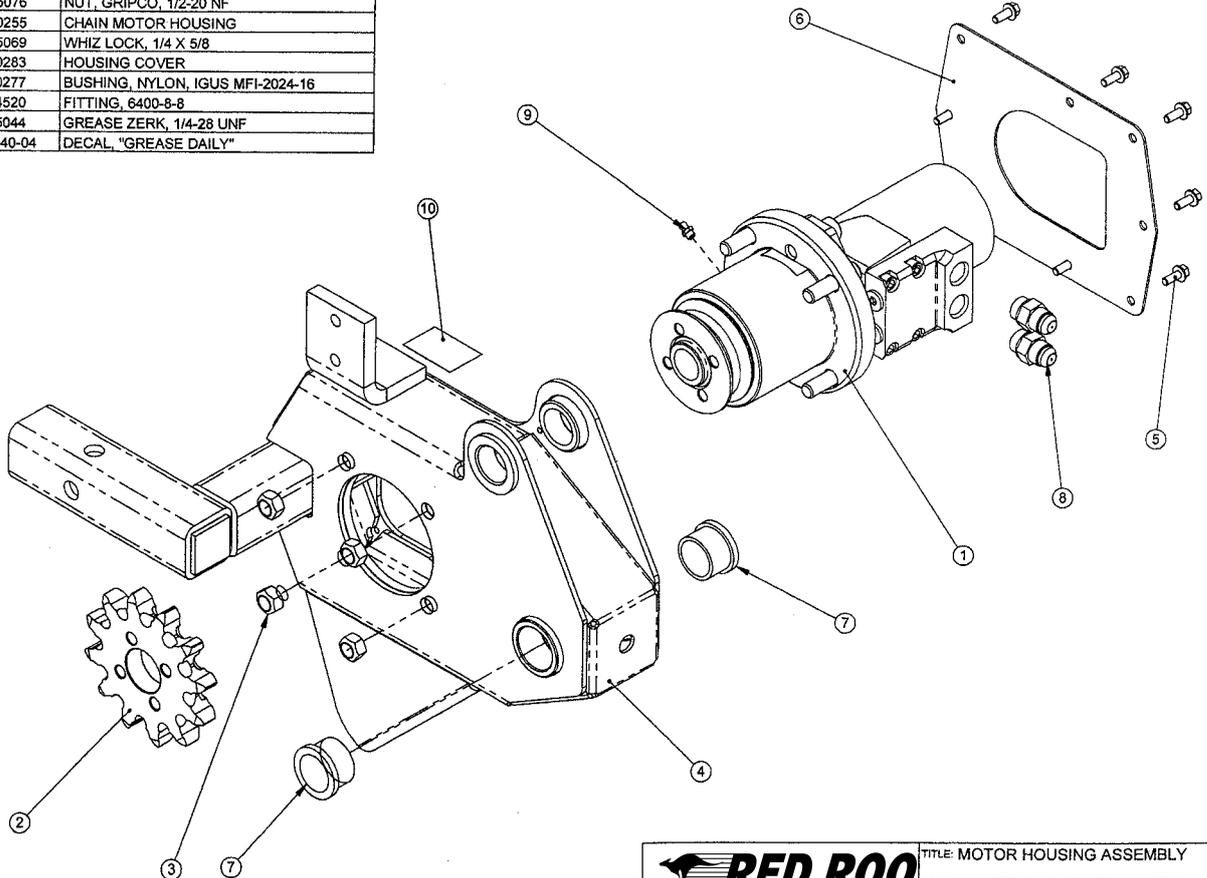
| REF. | QTY. | PART NO. | DESCRIPTION                               |
|------|------|----------|---|
| 1    | 4    | 05572    | SH CAP SCREW, 5/16-18 NC X 1 G5 ZINC      |
| 2    | 2    | 03226    | O-RING, 2-112N70, 11/16 OD X 3/32 SECTION |
| 3    | 1    | 10265    | SEAL CR22550 PN:                          |
| 4    | 1    | 10284    | SNAP RING, HO-334, 3-11/32 INTERNAL       |
| 5    | 1    | 05603    | SNAP RING, HO-315, 3-5/32 INTERNAL        |
| 6    | 1    | 05607    | SNAP RING, SH-156, 1-9/16" EXTERNAL       |
| 7    | 1    | 10253    | BALL BEARING, SKF 6209                    |
| 8    | 1    | 03943    | BALL BEARING, SKF 6208                    |
| 9    | 1    | 02065    | MANIFOLD, TINE MOTOR                      |
| 10   | 1    | 10450    | MOTOR 158-T 11.9 M-SPL                    |
| 11   | 1    | 10254    | HOUSING TUBE                              |
| 12   | 1    | 10252    | SPROCKET SPINDLE                          |
| 13   | 1    | 03001    | O-RING, 2-152, 3-7/16 OD X 3/32 SECTION   |
| 14   | 2    | 03302    | FITTING, 6409-6 PLUG                      |
| 15   | 2    | 05585    | SH CAP SCREW, 1/2-13 NC X 1-1/4 G5 ZINC   |
| 16   | 4    | 05167    | STUD, KNURLED 1/2-20 X 1-13/16, PLT       |



**RED ROO**  
Commercial Environmental Equipment

TITLE: MOTOR / SHAFT ASSEMBLY  
 PRODUCT LINE: TRENCHER 912      DATE: 3/10/04  
 SCALE: 1:4      DWG# 00263  
 SHEET 1 OF 1

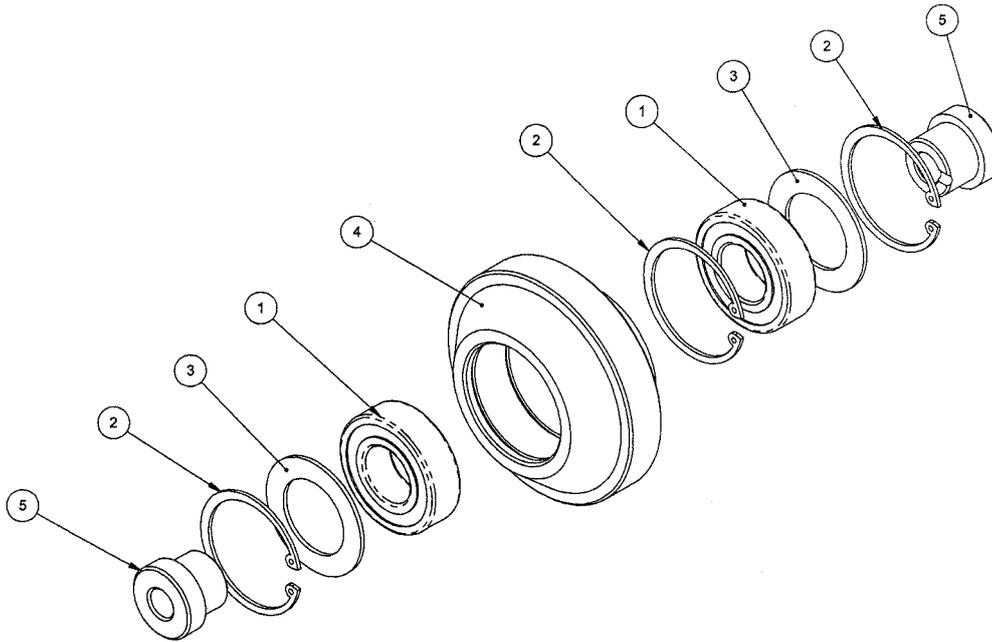
| REF. | QTY. | PART NO. | DESCRIPTION                      |
|------|------|----------|----------------------------------|
| 1    | 1    | 00263    | MOTOR/SHAFT ASSEMBLY             |
| 2    | 1    | 10248    | DIG SPROCKET 100A12              |
| 3    | 4    | 05076    | NUT, GRIPCO, 1/2-20 NF           |
| 4    | 1    | 10255    | CHAIN MOTOR HOUSING              |
| 5    | 8    | 05069    | WHIZ LOCK, 1/4 X 5/8             |
| 6    | 1    | 10283    | HOUSING COVER                    |
| 7    | 2    | 10277    | BUSHING, NYLON, IGUS MFI-2024-16 |
| 8    | 2    | 04520    | FITTING, 6400-8-8                |
| 9    | 1    | 05044    | GREASE ZERK, 1/4-28 UNF          |
| 10   | 1    | 03040-04 | DECAL, "GREASE DAILY"            |



**RED ROO**  
Commercial Environmental Equipment

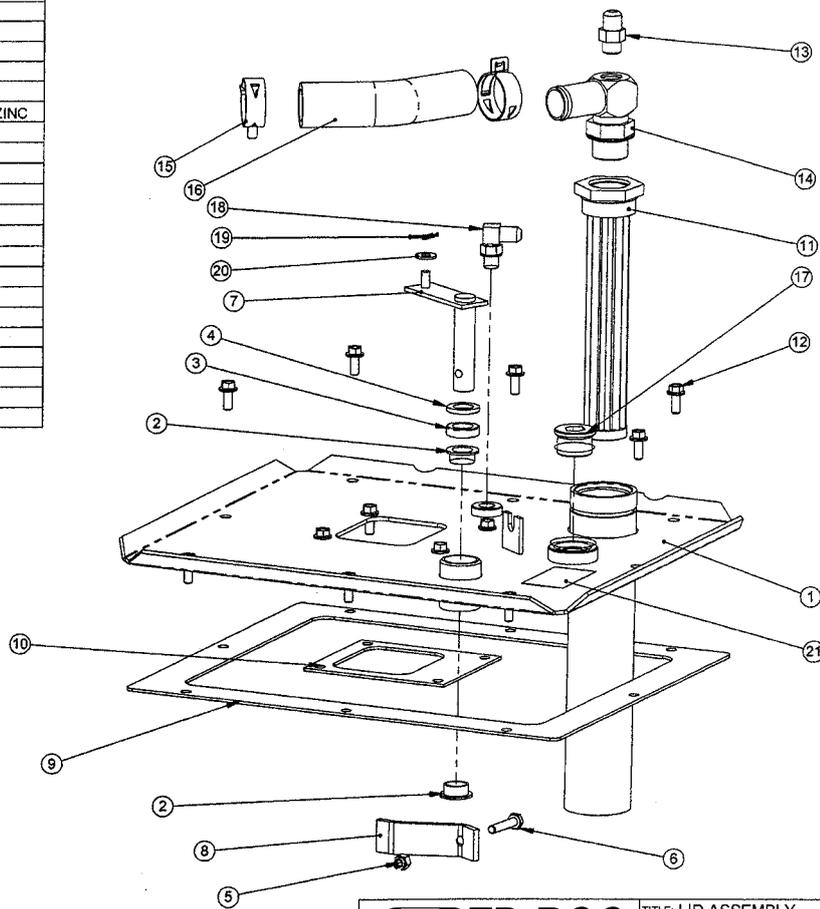
TITLE: MOTOR HOUSING ASSEMBLY  
 PRODUCT LINE: TRENCHER 912      DATE: 3/12/04  
 SCALE: 1:4      DWG# 00264  
 SHEET 1 OF 1

| REF. | QTY. | PART NO. | DESCRIPTION                    |
|------|------|----------|--------------------------------|
| 1    | 2    | 03043    | BALL BEARING, 6205             |
| 2    | 3    | 05024    | SNAP RING, HO-200, 2" INTERNAL |
| 3    | 2    | 01026    | SHIELD, OUTBOARD BEARING       |
| 4    | 1    | 10311    | CHAIN ROLLER                   |
| 5    | 2    | 10312    | ROLLER SPACER                  |



TITLE: CHAIN ROLLER ASSEMBLY  
 PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
 SCALE: 1:2 DWG# 00265  
 SHEET 1 OF 1

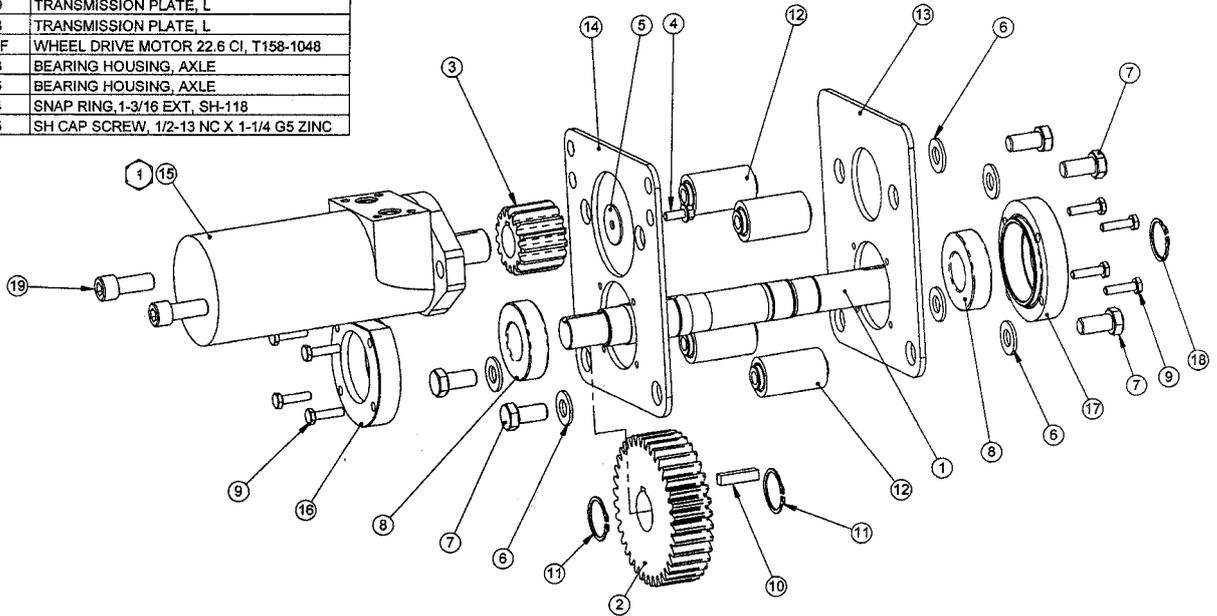
| REF. | QTY. | PART NO. | DESCRIPTION                            |
|------|------|----------|--|
| 1    | 1    | 10243    | LID                                    |
| 2    | 2    | 03060    | BUSHING, NYLON, IGUS MFI-1012-06       |
| 3    | 1    | 03020    | SEAL                                   |
| 4    | 1    | 03061    | FELT WASHER, 5/8 X 1 X 1/8             |
| 5    | 1    | 05096    | NUT, NYLOCK, 1/4-20 NC                 |
| 6    | 1    | 05125    | HH CAP SCREW 1/4-20 NC X 1-1/4 G5 ZINC |
| 7    | 1    | 10244    | DUMP VALVE ARM                         |
| 8    | 1    | 01211    | DUMP VALVE LEVER                       |
| 9    | 1    | 03241    | LID GASKET                             |
| 10   | 1    | 03242    | MANIFOLD GASKET                        |
| 11   | 1    | 10247    | SUMP SCREEN #12 O-RING                 |
| 12   | 12   | 05069    | WHIZ LOCK, 1/4 X 5/8                   |
| 13   | 1    | 10401    | FITTING, 6400-6-6                      |
| 14   | 1    | 04530    | FITTING, 4601-16-12                    |
| 15   | 2    | 05225    | CLAMP, 1-1/2" HOSE, CTB-35 ST          |
| 16   | 1    | 10366    | SUCTION HOSE                           |
| 17   | 1    | 10526    | FITTING, 6409-12 PLUG                  |
| 18   | 1    | 04555    | FITTING, 6801-4-4                      |
| 19   | 1    | 05038    | RUE RING COTTER #8                     |
| 20   | 1    | 05081    | WASHER, 1/4 SAE ZINC                   |
| 21   | 1    | 03040-06 | DECAL, "HYDRAULIC OIL ONLY"            |



TITLE: LID ASSEMBLY  
 PRODUCT LINE: TRENCHER 912 DATE: 3/11/04  
 SCALE: 1:4 DWG# 00267  
 SHEET 1 OF 1

| REF. QTY. | PART NO. | DESCRIPTION                                   |
|-----------|----------|---|
| 1         | 1        | 10230 AXLE, RIGHT                             |
| 2         | 1        | 10063 GEAR, WHEEL DRIVE, 36T X 1-1/4          |
| 3         | 1        | 02075 GEAR, WHEEL DRIVE MOTOR                 |
| 4         | 1        | 05069 WHIZ LOCK, 1/4 X 5/8                    |
| 5         | 1        | 05542 WASHER, 1/4 FENDER PLAIN                |
| 6         | 6        | 05102 WASHER, 1/2 SAE ZINC HARDENED           |
| 7         | 6        | 05067 HH CAP SCREW, 1/2-13 NC X 1 G5 ZINC     |
| 8         | 2        | 03280 BALL BEARING, SKF 6206                  |
| 9         | 8        | 05237 HH CAP SCREW 1/4-20 NC X 1 G5 ZINC      |
| 10        | 1        | 05015 KEY, 5/16 X 5/16 X 1-1/4                |
| 11        | 2        | 05214 SNAP RING, 1-1/4" EXTERNAL, SH-125      |
| 12        | 4        | 10219 PIN, SMALL, 2 SPEED TRANSMISSION        |
| 13        | 1        | 10229 TRANSMISSION PLATE, L                   |
| 14        | 1        | 10228 TRANSMISSION PLATE, R                   |
| 15        | 1        | 04502-F WHEEL DRIVE MOTOR 22.6 CI, T158-1048  |
| 16        | 1        | 10183 BEARING HOUSING, AXLE                   |
| 17        | 1        | 10235 BEARING HOUSING, AXLE                   |
| 18        | 1        | 05034 SNAP RING, 1-3/16 EXT, SH-118           |
| 19        | 2        | 05585 SH CAP SCREW, 1/2-13 NC X 1-1/4 G5 ZINC |

① KEY SUPPLIED WITH MOTOR  
1/4 X 1" WOODRUFF PN 05013

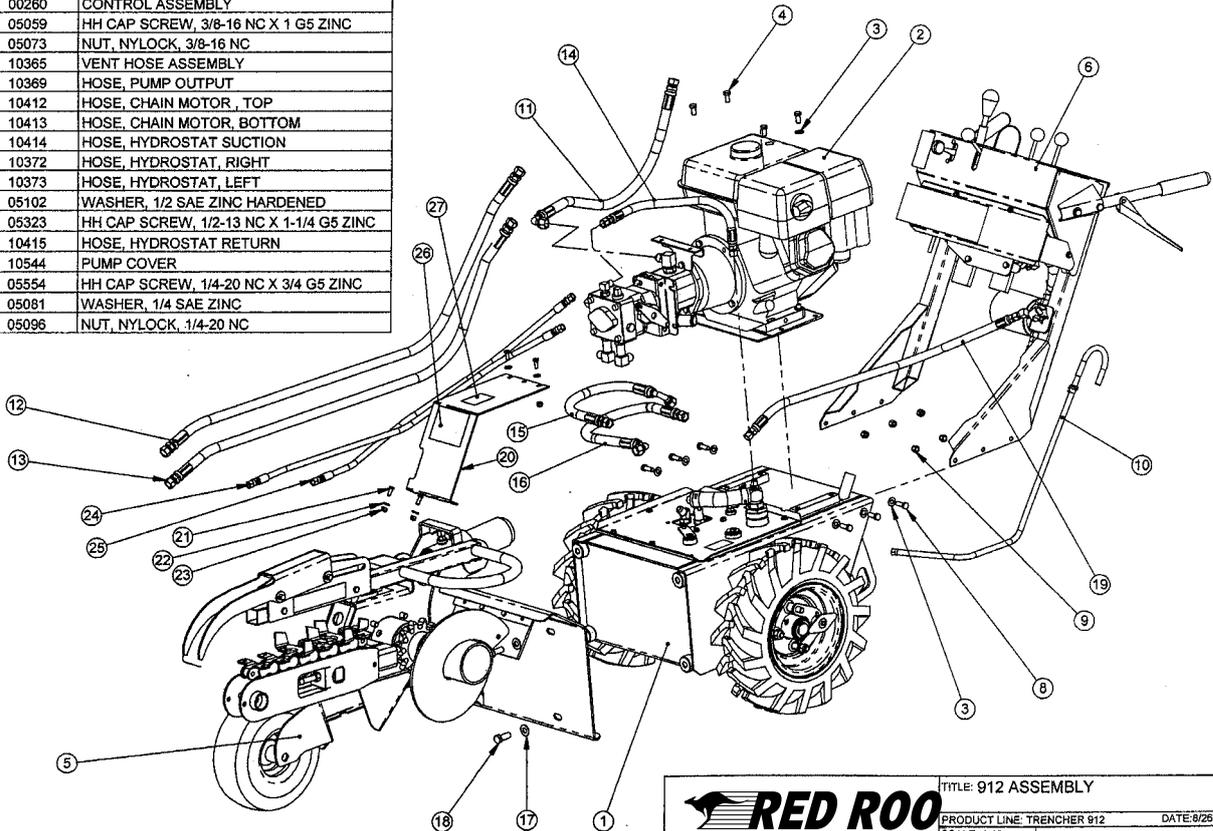


**RED ROO**  
Commercial Environmental Equipment

TITLE: TRANSMISSION ASSEMBLY  
PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
SCALE: 1:4 DWG# 00268

| REF. QTY. | PART NO. | DESCRIPTION                                   |
|-----------|----------|---|
| 1         | 1        | 00247 BODY ASSEMBLY                           |
| 2         | 1        | 00261 ENGINE & PUMP ASSEMBLY                  |
| 3         | 10       | 05101 WASHER, 3/8 SAE ZINC                    |
| 4         | 4        | 05057 HH CAP SCREW, 3/8-16 NC X 3/4 G5 ZINC   |
| 5         | 1        | 00262 FRONT END                               |
| 6         | 1        | 00260 CONTROL ASSEMBLY                        |
| 8         | 6        | 05059 HH CAP SCREW, 3/8-16 NC X 1 G5 ZINC     |
| 9         | 6        | 05073 NUT, NYLOCK, 3/8-16 NC                  |
| 10        | 1        | 10365 VENT HOSE ASSEMBLY                      |
| 11        | 1        | 10369 HOSE, PUMP OUTPUT                       |
| 12        | 1        | 10412 HOSE, CHAIN MOTOR, TOP                  |
| 13        | 1        | 10413 HOSE, CHAIN MOTOR, BOTTOM               |
| 14        | 1        | 10414 HOSE, HYDROSTAT SUCTION                 |
| 15        | 1        | 10372 HOSE, HYDROSTAT, RIGHT                  |
| 16        | 1        | 10373 HOSE, HYDROSTAT, LEFT                   |
| 17        | 4        | 05102 WASHER, 1/2 SAE ZINC HARDENED           |
| 18        | 4        | 05323 HH CAP SCREW, 1/2-13 NC X 1-1/4 G5 ZINC |
| 19        | 1        | 10415 HOSE, HYDROSTAT RETURN                  |
| 20        | 1        | 10544 PUMP COVER                              |
| 21        | 4        | 05554 HH CAP SCREW, 1/4-20 NC X 3/4 G5 ZINC   |
| 22        | 4        | 05081 WASHER, 1/4 SAE ZINC                    |
| 23        | 4        | 05096 NUT, NYLOCK, 1/4-20 NC                  |

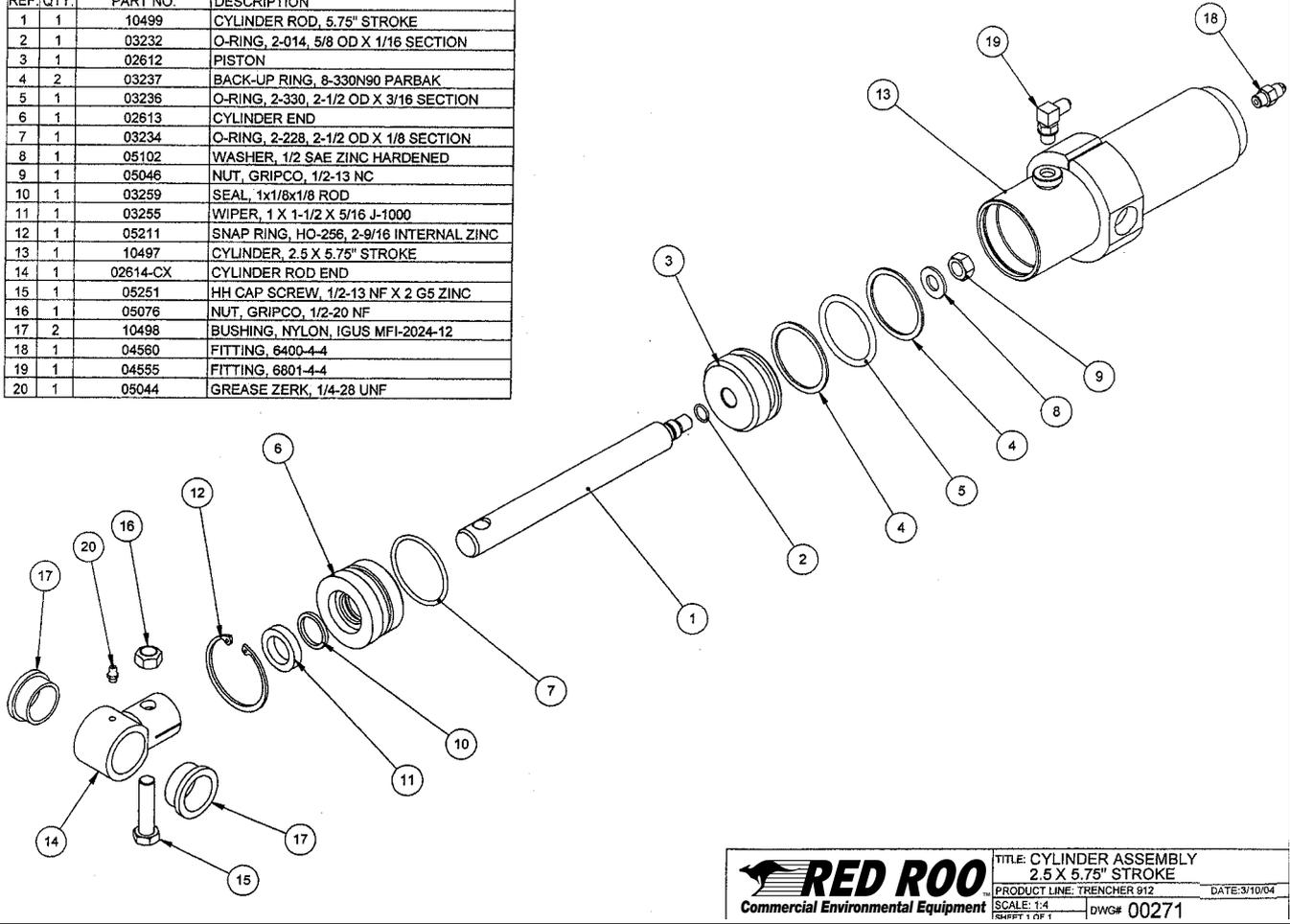
| REF. QTY. | PART NO. | DESCRIPTION                          |
|-----------|----------|--------------------------------------|
| 24        | 1        | 10551 CYLINDER HOSE, BOTTOM / ROD    |
| 25        | 1        | 10550 CYLINDER HOSE, TOP / PISTON    |
| 26        | 1        | 03341-04 DECAL, CAUTION AVOID INJURY |
| 27        | 1        | 03040-01 DECAL, "MADE IN USA"        |



**RED ROO**  
Commercial Environmental Equipment

TITLE: 912 ASSEMBLY  
PRODUCT LINE: TRENCHER 912 DATE: 8/26/04  
SCALE: 1:12 DWG# 00269  
SHEET 1 OF 1

| REF. | QTY. | PART NO. | DESCRIPTION                             |
|------|------|----------|---|
| 1    | 1    | 10499    | CYLINDER ROD, 5.75" STROKE              |
| 2    | 1    | 03232    | O-RING, 2-014, 5/8 OD X 1/16 SECTION    |
| 3    | 1    | 02612    | PISTON                                  |
| 4    | 2    | 03237    | BACK-UP RING, 8-330N90 PARBAK           |
| 5    | 1    | 03236    | O-RING, 2-330, 2-1/2 OD X 3/16 SECTION  |
| 6    | 1    | 02613    | CYLINDER END                            |
| 7    | 1    | 03234    | O-RING, 2-228, 2-1/2 OD X 1/8 SECTION   |
| 8    | 1    | 05102    | WASHER, 1/2 SAE ZINC HARDENED           |
| 9    | 1    | 05046    | NUT, GRIPCO, 1/2-13 NC                  |
| 10   | 1    | 03259    | SEAL, 1x1/8x1/8 ROD                     |
| 11   | 1    | 03255    | WIPE, 1 X 1-1/2 X 5/16 J-1000           |
| 12   | 1    | 05211    | SNAP RING, HO-256, 2-9/16 INTERNAL ZINC |
| 13   | 1    | 10497    | CYLINDER, 2.5 X 5.75" STROKE            |
| 14   | 1    | 02614-CX | CYLINDER ROD END                        |
| 15   | 1    | 05251    | HH CAP SCREW, 1/2-13 NF X 2 G5 ZINC     |
| 16   | 1    | 05076    | NUT, GRIPCO, 1/2-20 NF                  |
| 17   | 2    | 10498    | BUSHING, NYLON, IGUS MFI-2024-12        |
| 18   | 1    | 04560    | FITTING, 6400-4-4                       |
| 19   | 1    | 04555    | FITTING, 6601-4-4                       |
| 20   | 1    | 05044    | GREASE ZERK, 1/4-28 UNF                 |



**RED ROO**  
Commercial Environmental Equipment

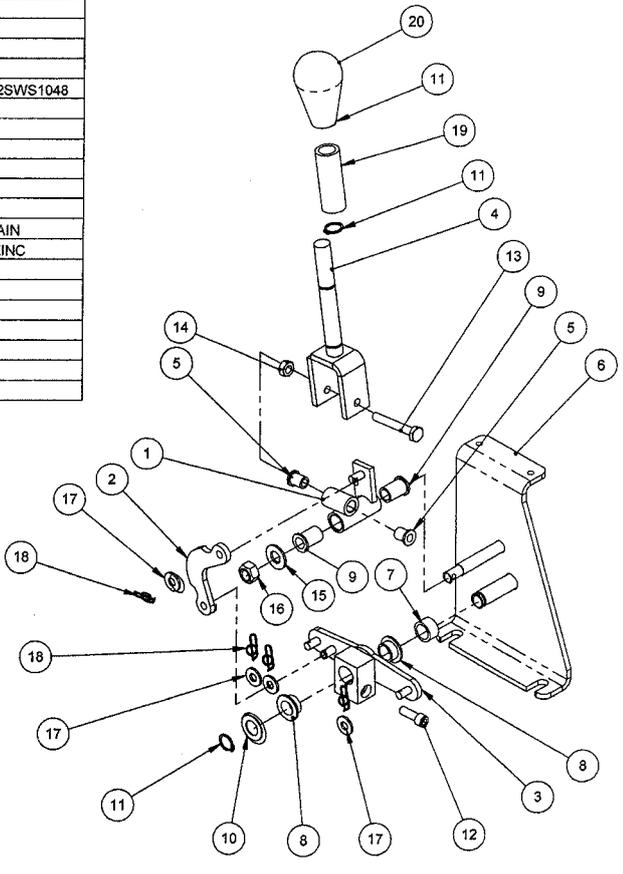
TITLE: CYLINDER ASSEMBLY  
2.5 X 5.75" STROKE

PRODUCT LINE: TRENCHER 912      DATE: 3/10/04

SCALE: 1:4      DWG# 00271

SHEET 1 OF 1

| REF. | QTY. | PART NO. | DESCRIPTION                              |
|------|------|----------|--|
| 1    | 1    | 10521    | SPEED LEVER PIVOT                        |
| 2    | 1    | 10523    | SPEED LINK                               |
| 3    | 1    | 10519    | SPEED CABLE ARM                          |
| 4    | 1    | 10524    | SPEED LEVER                              |
| 5    | 2    | 03029-04 | BUSHING, NYLON, MICRO PLASTICS 12SWS1048 |
| 6    | 1    | 10520    | SPEED LEVER MOUNT                        |
| 7    | 1    | 10525    | SPACER                                   |
| 8    | 2    | 10100    | BUSHING, NYLON, IGUS MFI-0810-05         |
| 9    | 2    | 10069    | BUSHING, NYLON, IGUS MFI-0608-12         |
| 10   | 1    | 10113    | THRUST WASHER, .518 X .873 X .030        |
| 11   | 3    | 05506    | SNAP RING, 1/2" EXTERNAL, SH-50          |
| 12   | 1    | 05235    | SH CAP SCREW, 1/4-28 NF X 3/4 G5 PLAIN   |
| 13   | 1    | 05243    | HH CAP SCREW, 1/4-28 NF X 1-3/4 G5 ZINC  |
| 14   | 1    | 05266    | NUT, GRIPCO, 1/4-28 NF GRB               |
| 15   | 1    | 05101    | WASHER, 3/8 SAE ZINC                     |
| 16   | 1    | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 17   | 4    | 05081    | WASHER, 1/4 SAE ZINC                     |
| 18   | 4    | 05038    | RUE RING COTTER #8                       |
| 19   | 1    | 10547    | SPEED LEVER ROLLER                       |
| 20   | 1    | 03508    | SPEED KNOB                               |



**RED ROO**  
Commercial Environmental Equipment

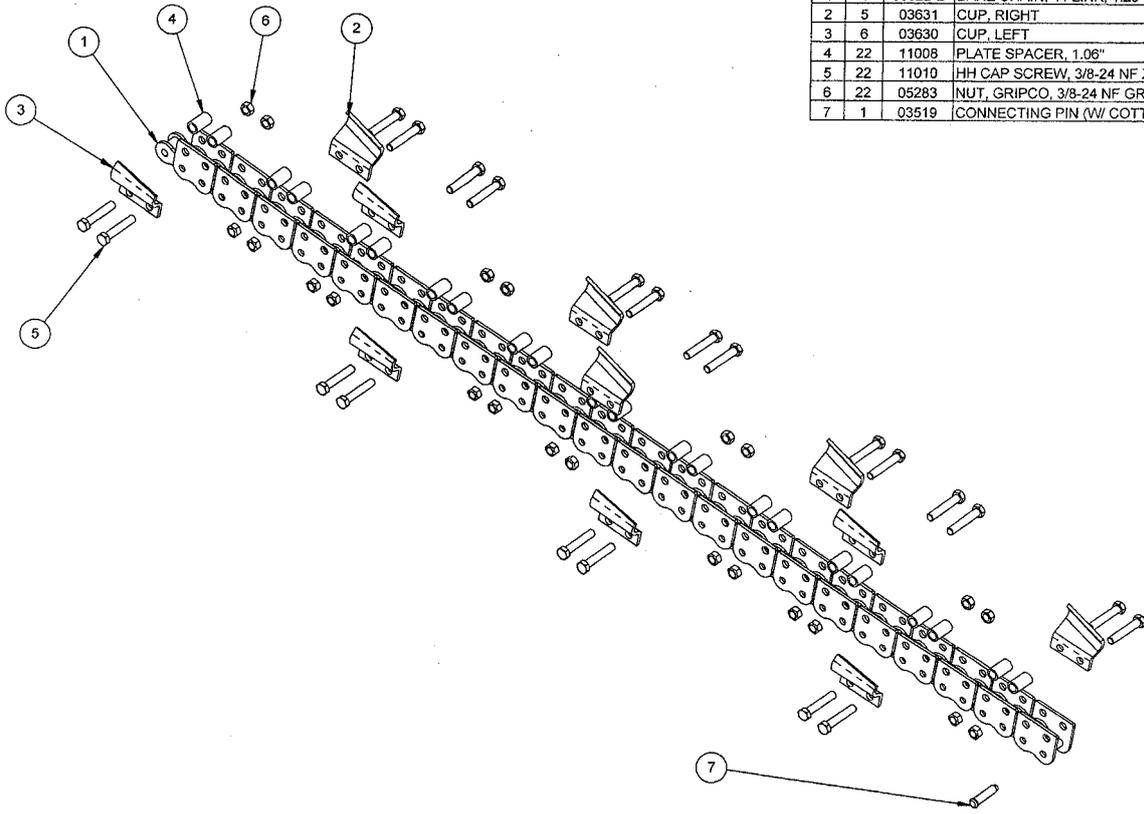
TITLE: SPEED LEVER ASSEMBLY

PRODUCT LINE: TRENCHER 912      DATE: 6/24/04

SCALE: 1:4      DWG# 00273

SHEET 1 OF 1

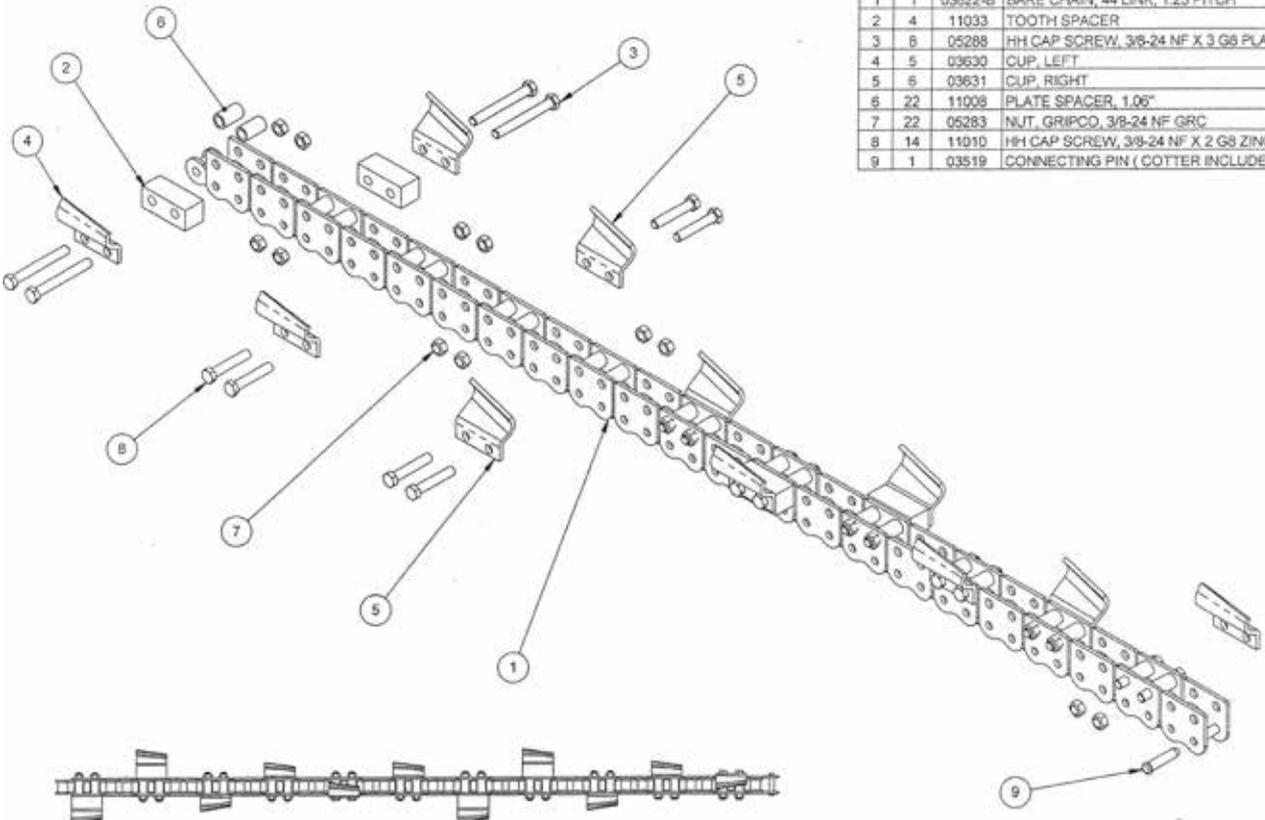
| REF. | QTY. | PART NO. | DESCRIPTION                         |
|------|------|----------|-------------------------------------|
| 1    | 1    | 03622-B  | BARE CHAIN, 44 LINK, 1.25 PITCH     |
| 2    | 5    | 03631    | CUP, RIGHT                          |
| 3    | 6    | 03630    | CUP, LEFT                           |
| 4    | 22   | 11008    | PLATE SPACER, 1.06"                 |
| 5    | 22   | 11010    | HH CAP SCREW, 3/8-24 NF X 2 G8 ZINC |
| 6    | 22   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC          |
| 7    | 1    | 03519    | CONNECTING PIN (W/ COTTER)          |



**RED ROO**  
Commercial Environmental Equipment

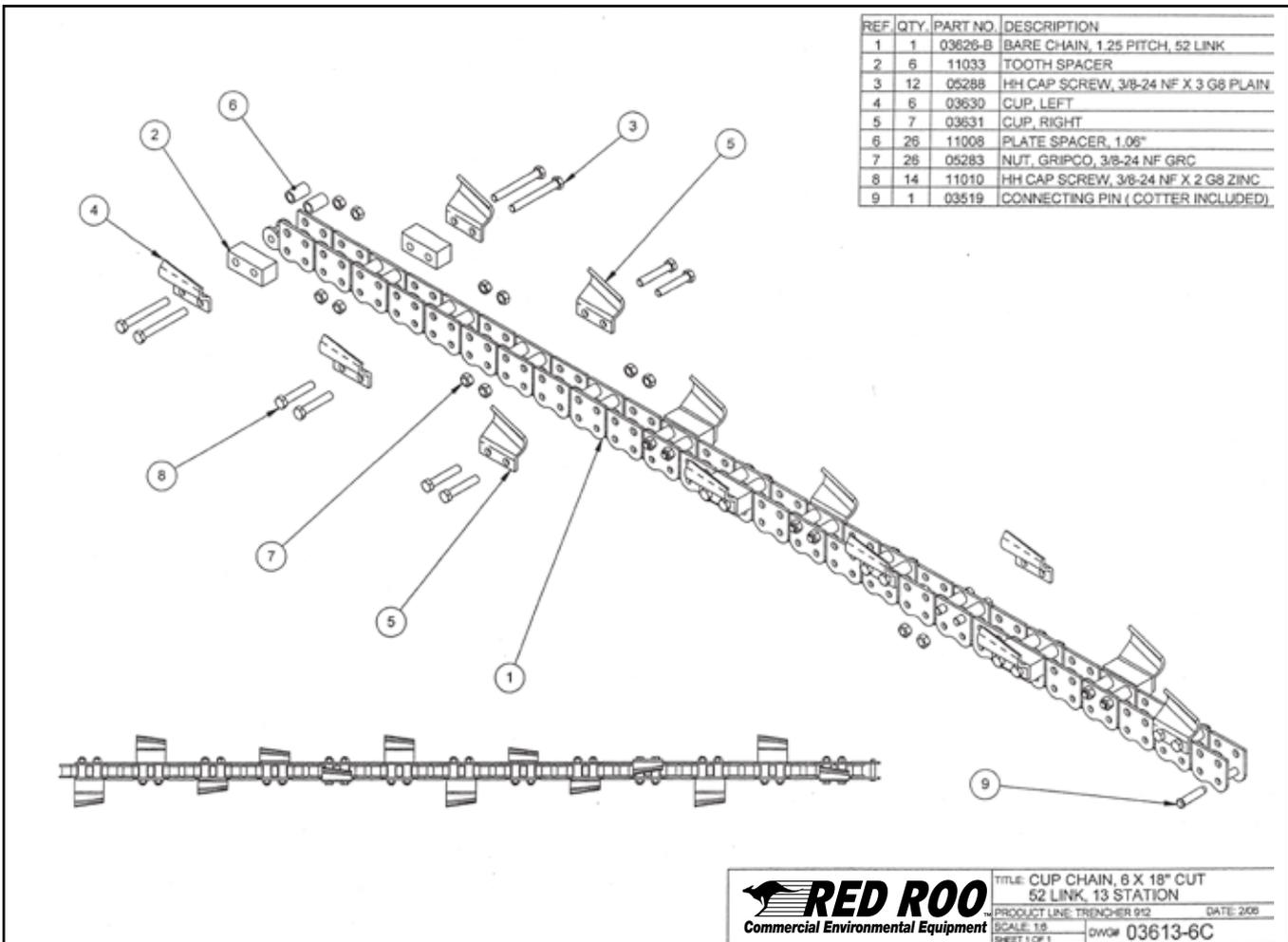
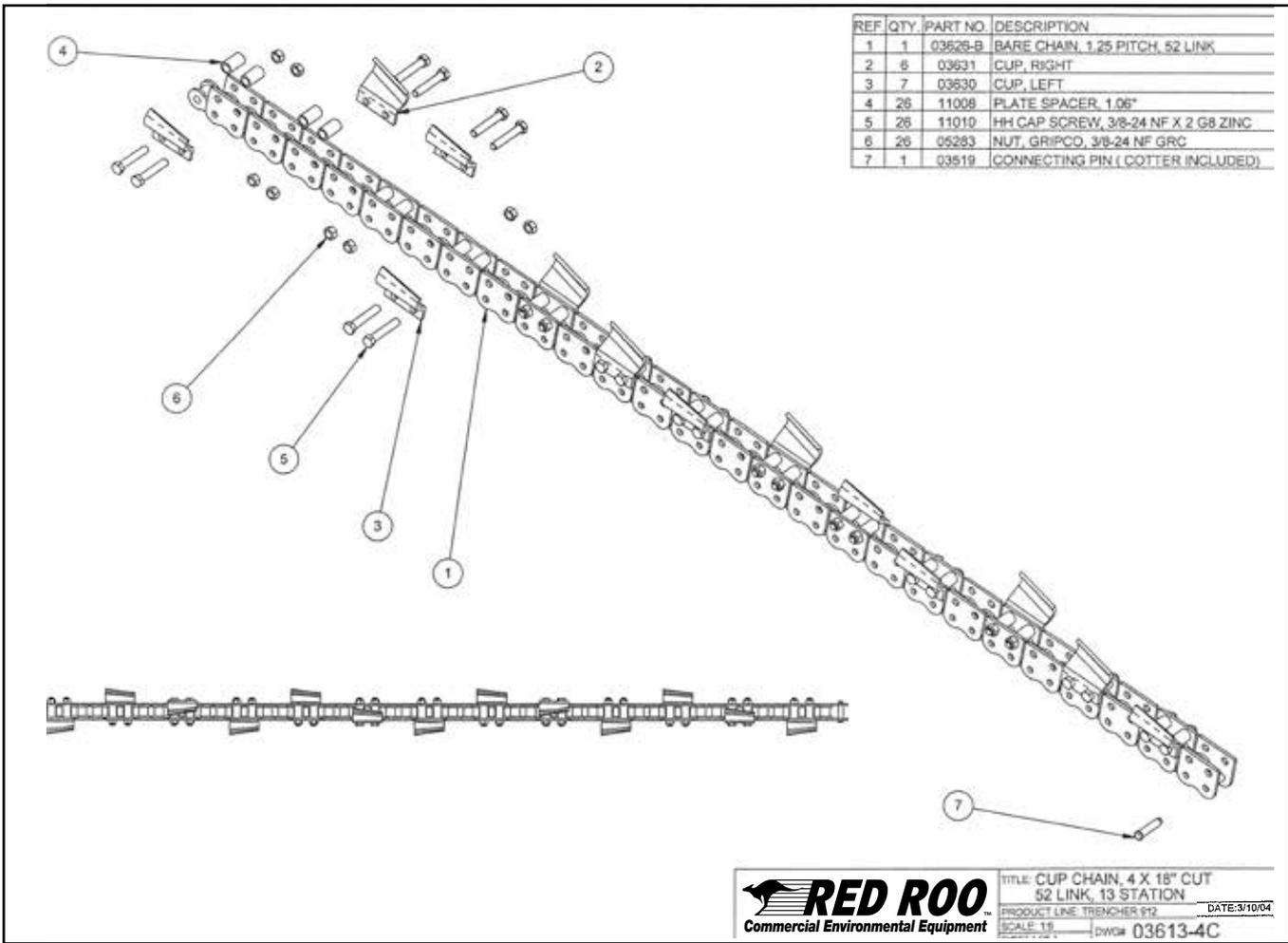
TITLE: CUP CHAIN, 4 X 12" CUT  
44 LINK, 11 STATION  
PRODUCT LINE: TRENCHER 912 DATE: 1/06  
SCALE: 1:6 DWG# 03611-4C  
SHEET 1 OF 1

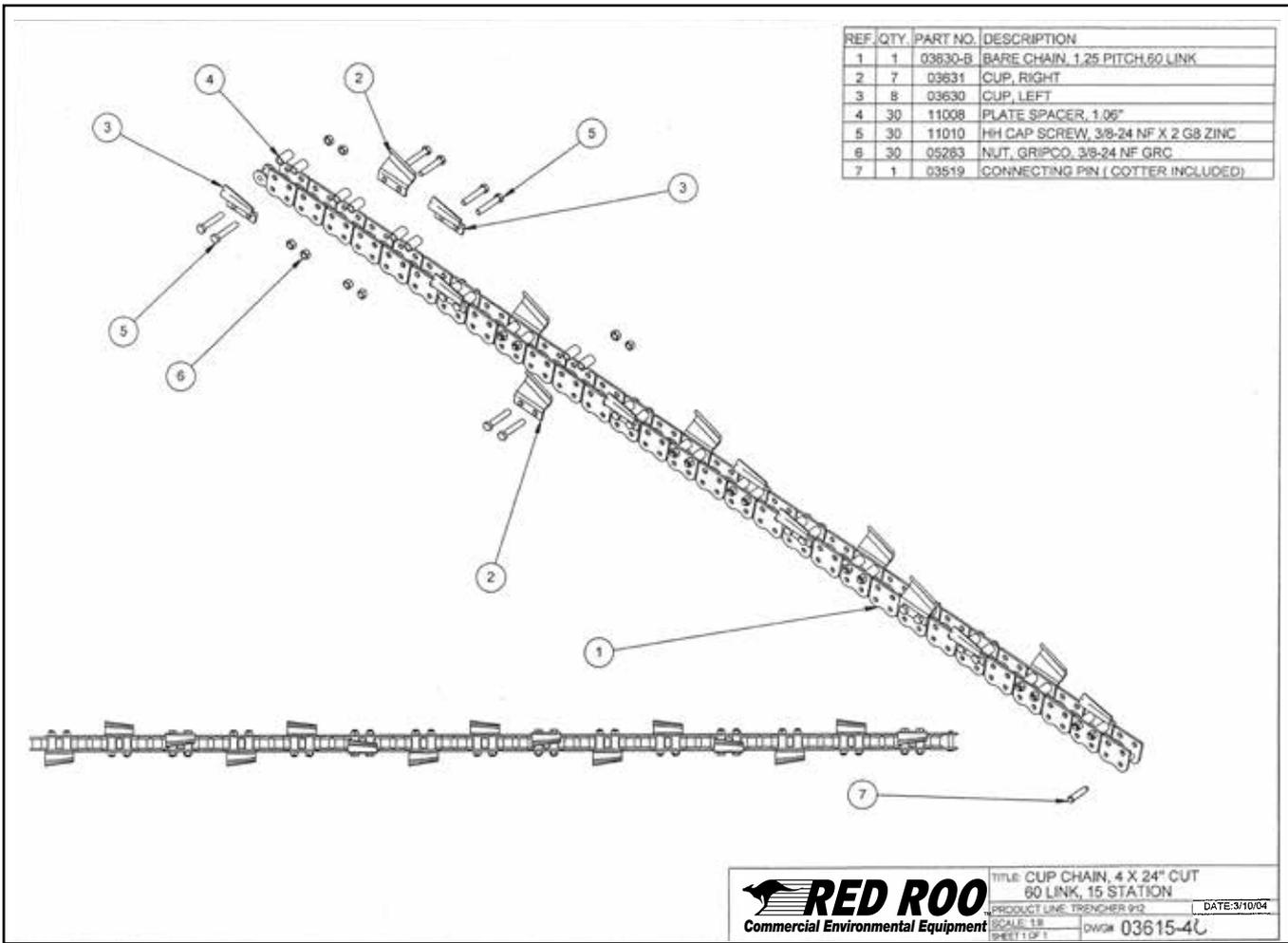
| REF. | QTY. | PART NO. | DESCRIPTION                          |
|------|------|----------|--------------------------------------|
| 1    | 1    | 03622-B  | BARE CHAIN, 44 LINK, 1.25 PITCH      |
| 2    | 4    | 11033    | TOOTH SPACER                         |
| 3    | 6    | 05288    | HH CAP SCREW, 3/8-24 NF X 3 G8 PLAIN |
| 4    | 5    | 03630    | CUP, LEFT                            |
| 5    | 5    | 03631    | CUP, RIGHT                           |
| 6    | 22   | 11008    | PLATE SPACER, 1.06"                  |
| 7    | 22   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC           |
| 8    | 14   | 11010    | HH CAP SCREW, 3/8-24 NF X 2 G8 ZINC  |
| 9    | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)     |



**RED ROO**  
Commercial Environmental Equipment

TITLE: CUP CHAIN, 6 X 12" CUT  
44 LINK, 11 STATION  
PRODUCT LINE: TRENCHER 912 DATE: 2/06  
SCALE: 1:6 DWG# 03611-6C  
SHEET 1 OF 1

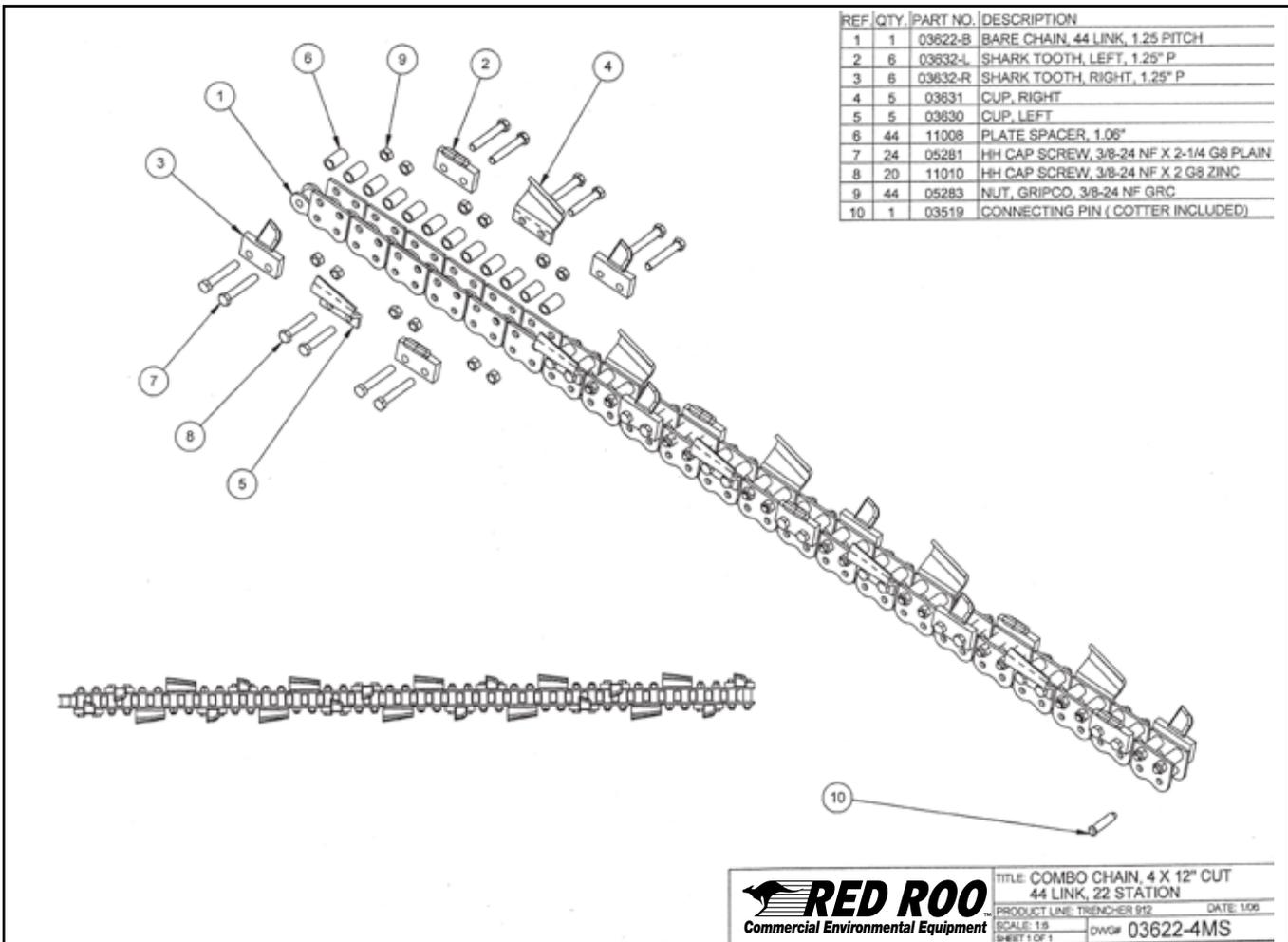




| REF. | QTY. | PART NO. | DESCRIPTION                         |
|------|------|----------|-------------------------------------|
| 1    | 1    | 03630-B  | BARE CHAIN, 1.25 PITCH, 60 LINK     |
| 2    | 7    | 03631    | CUP, RIGHT                          |
| 3    | 8    | 03630    | CUP, LEFT                           |
| 4    | 30   | 11008    | PLATE SPACER, 1.06"                 |
| 5    | 30   | 11010    | HH CAP SCREW, 3/8-24 NF X 2 G8 ZINC |
| 6    | 30   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC          |
| 7    | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)    |

**RED ROO**  
Commercial Environmental Equipment

TITLE: CUP CHAIN, 4 X 24" CUT  
60 LINK, 15 STATION  
PRODUCT LINE: TRENCHER 912  
SCALE: 1:8  
DATE: 3/10/04  
DWG# 03615-4C  
SHEET 1 OF 1

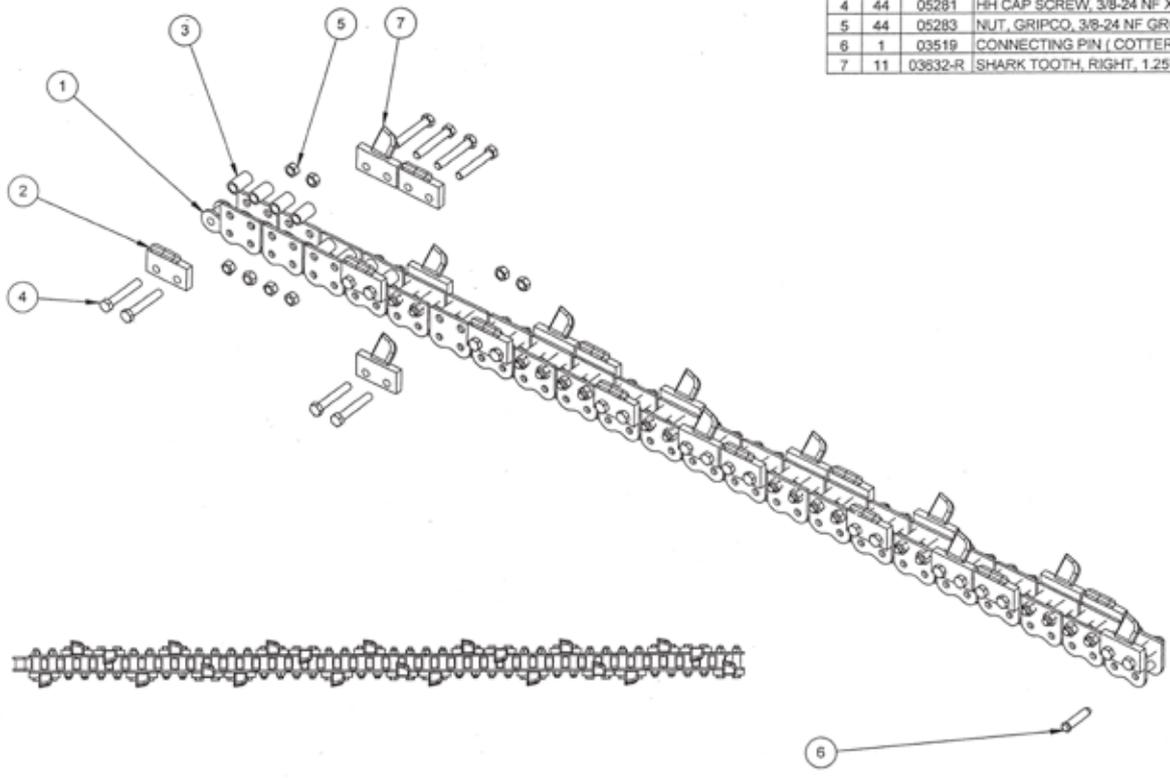


| REF. | QTY. | PART NO. | DESCRIPTION                              |
|------|------|----------|--|
| 1    | 1    | 03622-B  | BARE CHAIN, 44 LINK, 1.25 PITCH          |
| 2    | 6    | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 3    | 6    | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |
| 4    | 5    | 03631    | CUP, RIGHT                               |
| 5    | 5    | 03630    | CUP, LEFT                                |
| 6    | 44   | 11008    | PLATE SPACER, 1.06"                      |
| 7    | 24   | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 8    | 20   | 11010    | HH CAP SCREW, 3/8-24 NF X 2 G8 ZINC      |
| 9    | 44   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 10   | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)         |

**RED ROO**  
Commercial Environmental Equipment

TITLE: COMBO CHAIN, 4 X 12" CUT  
44 LINK, 22 STATION  
PRODUCT LINE: TRENCHER 912  
SCALE: 1:8  
DATE: 100  
DWG# 03622-4MS  
SHEET 1 OF 1

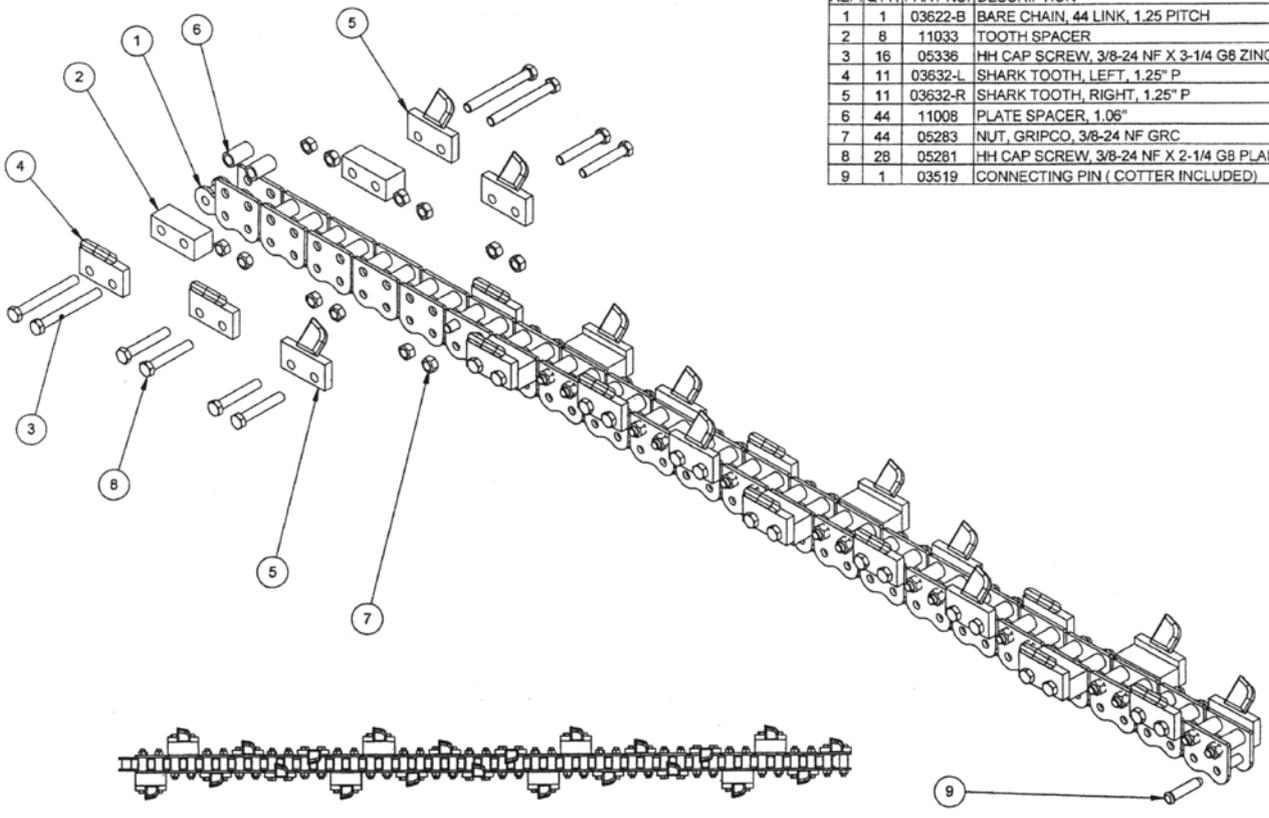
| REF | QTY | PART NO. | DESCRIPTION                              |
|-----|-----|----------|--|
| 1   | 1   | 03622-B  | BARE CHAIN, 44 LINK, 1.25" PITCH         |
| 2   | 11  | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 3   | 44  | 11008    | PLATE SPACER, 1.06"                      |
| 4   | 44  | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 5   | 44  | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 6   | 1   | 03519    | CONNECTING PIN (COTTER INCLUDED)         |
| 7   | 11  | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |



**RED ROO**  
Commercial Environmental Equipment

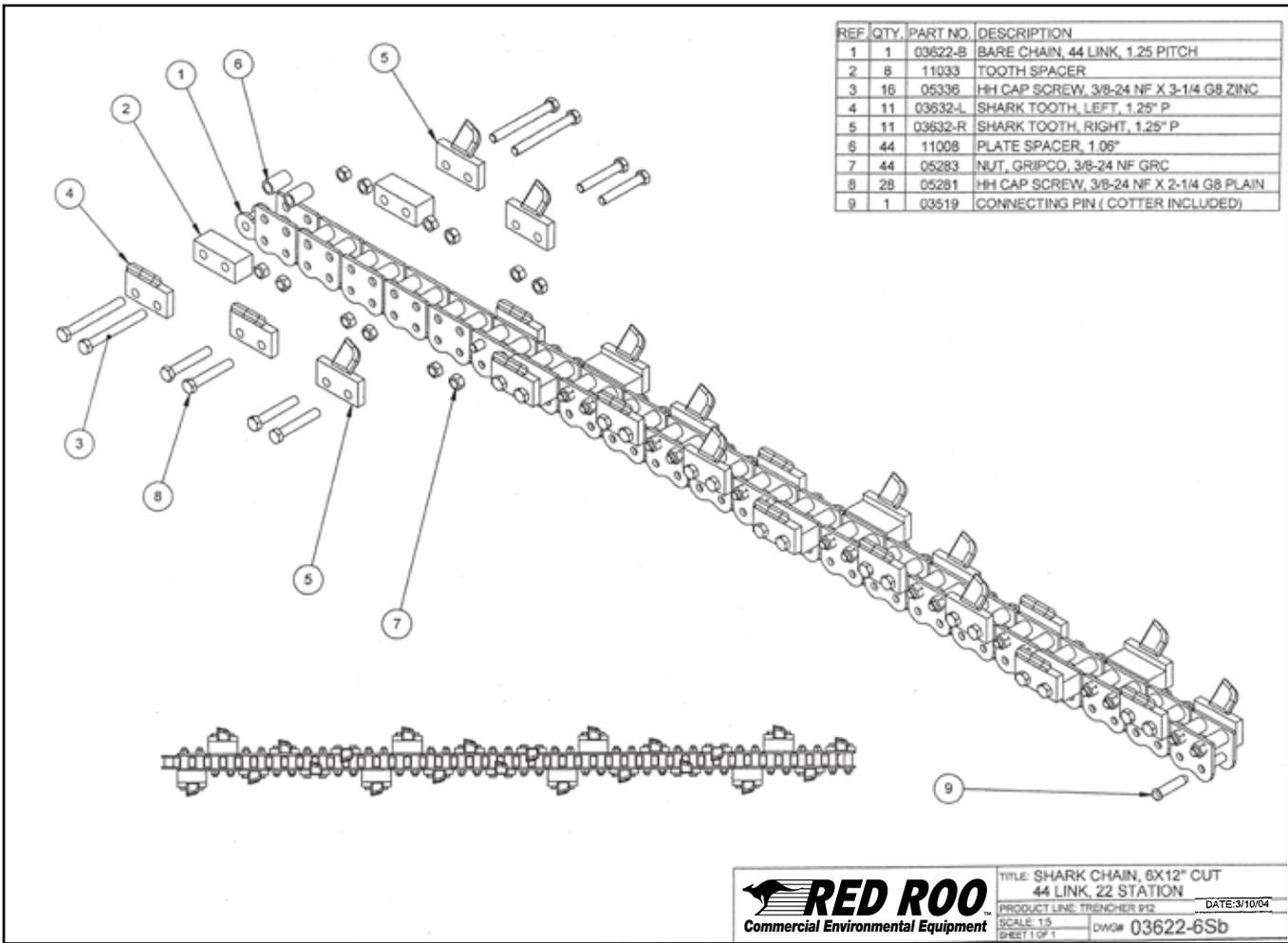
TITLE: SHARK CHAIN, 4 X 12" CUT  
44 LINK, 22 STATION  
PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
SCALE: 1:5 DWG#: 03622-4  
SHEET 1 OF 1

| REF | QTY | PART NO. | DESCRIPTION                              |
|-----|-----|----------|--|
| 1   | 1   | 03622-B  | BARE CHAIN, 44 LINK, 1.25" PITCH         |
| 2   | 8   | 11033    | TOOTH SPACER                             |
| 3   | 16  | 05336    | HH CAP SCREW, 3/8-24 NF X 3-1/4 G8 ZINC  |
| 4   | 11  | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 5   | 11  | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |
| 6   | 44  | 11008    | PLATE SPACER, 1.06"                      |
| 7   | 44  | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 8   | 28  | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 9   | 1   | 03519    | CONNECTING PIN (COTTER INCLUDED)         |



**RED ROO**  
Commercial Environmental Equipment

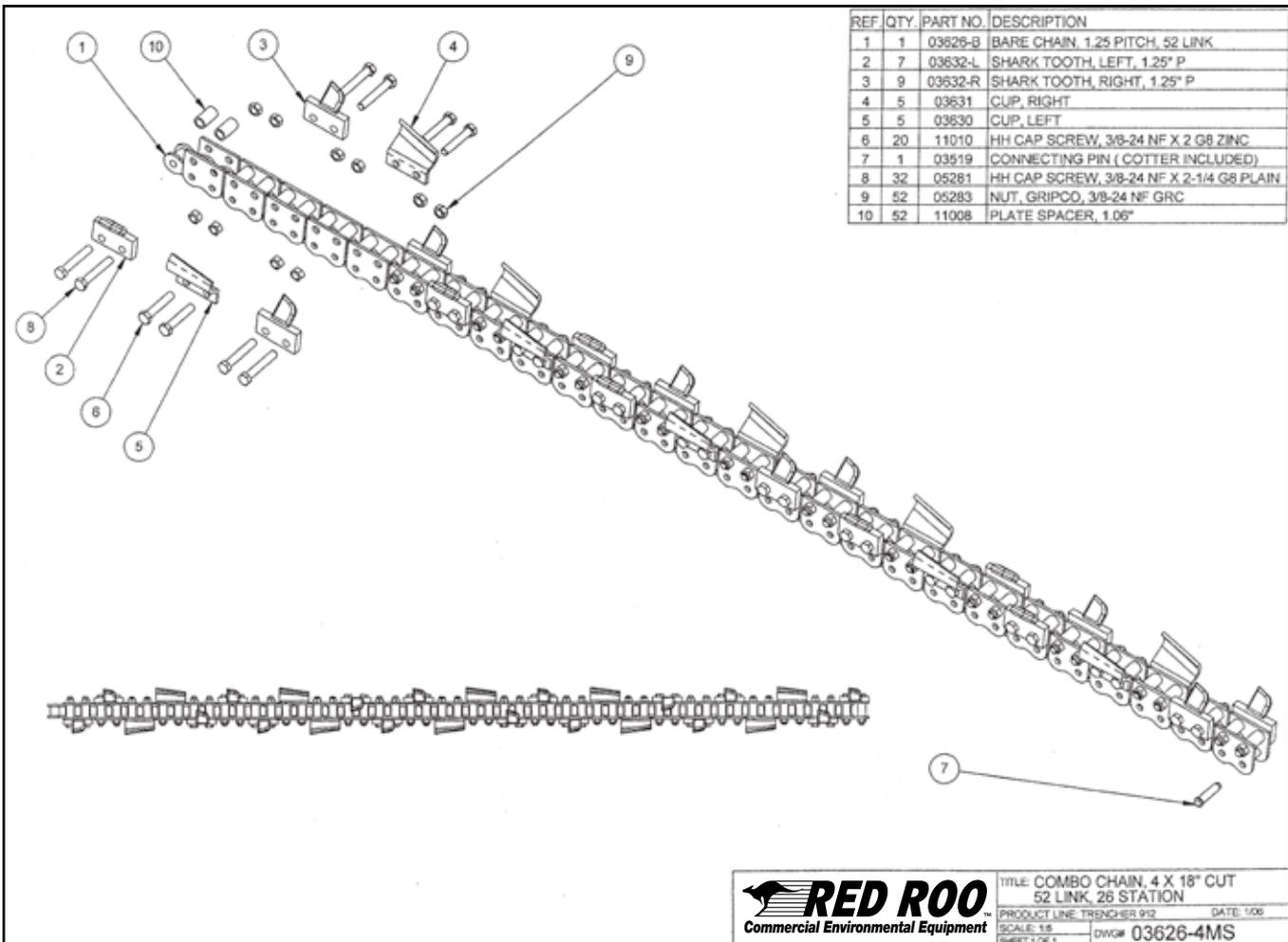
TITLE: SHARK CHAIN, 6X12" CUT  
44 LINK, 22 STATION  
PRODUCT LINE: TRENCHER 912 DATE: 3/10/04  
SCALE: 1:5 DWG#: 03622-6Sb  
SHEET 1 OF 1



**RED ROO**  
Commercial Environmental Equipment

TITLE: SHARK CHAIN, 6X12" CUT  
44 LINK, 22 STATION  
DATE: 3/10/04

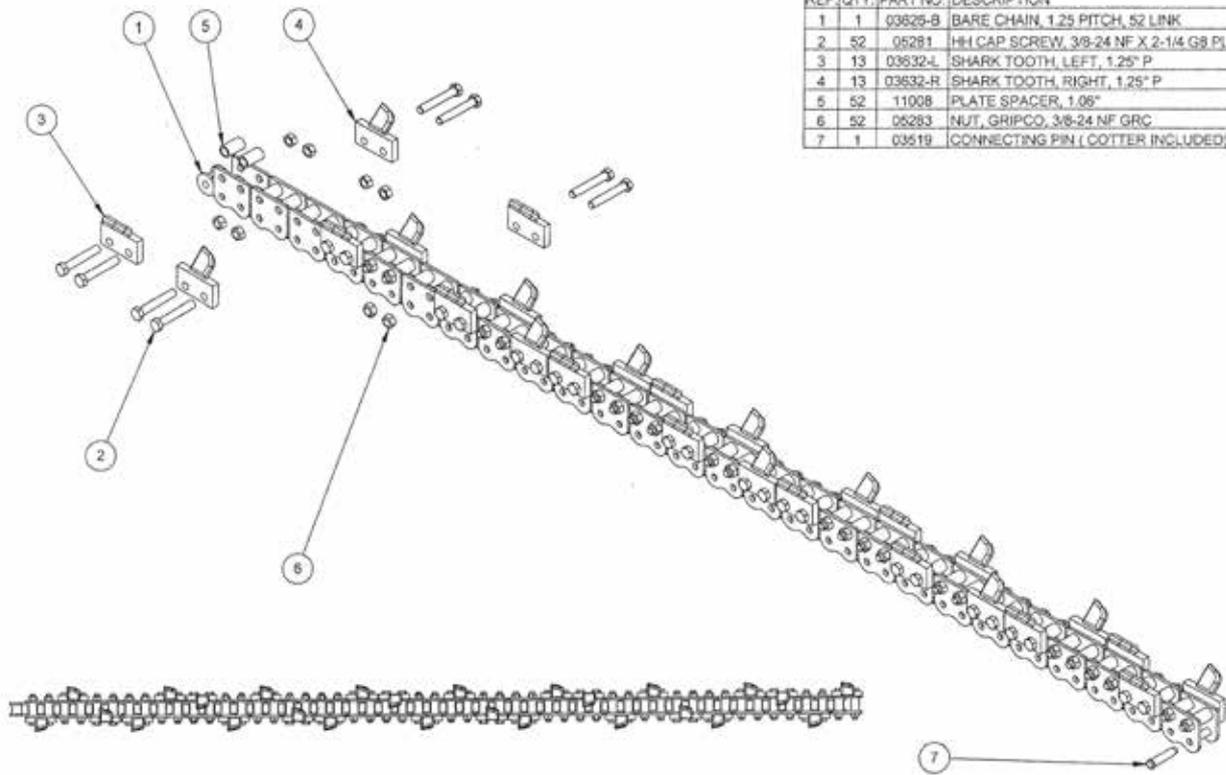
PRODUCT LINE: TRENCHER #12  
SCALE: 1:5  
DWG# 03622-6Sb



**RED ROO**  
Commercial Environmental Equipment

TITLE: COMBO CHAIN, 4 X 18" CUT  
52 LINK, 26 STATION  
DATE: 1/06

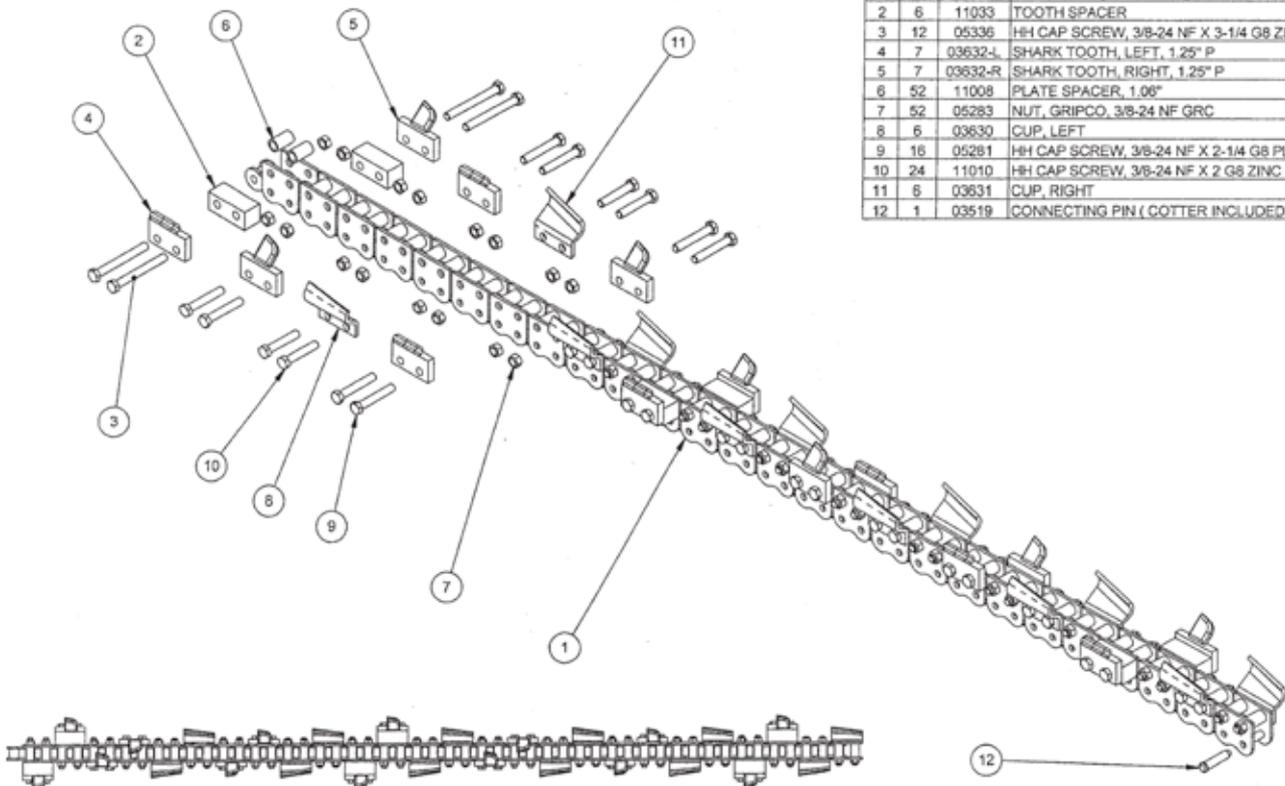
PRODUCT LINE: TRENCHER #12  
SCALE: 1:5  
DWG# 03626-4MS



| REF. | QTY. | PART NO. | DESCRIPTION                              |
|------|------|----------|--|
| 1    | 1    | 03626-B  | BARE CHAIN, 1.25" PITCH, 52 LINK         |
| 2    | 52   | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 3    | 13   | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 4    | 13   | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |
| 5    | 52   | 11008    | PLATE SPACER, 1.06"                      |
| 6    | 52   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 7    | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)         |


**RED ROO**  
 Commercial Environmental Equipment

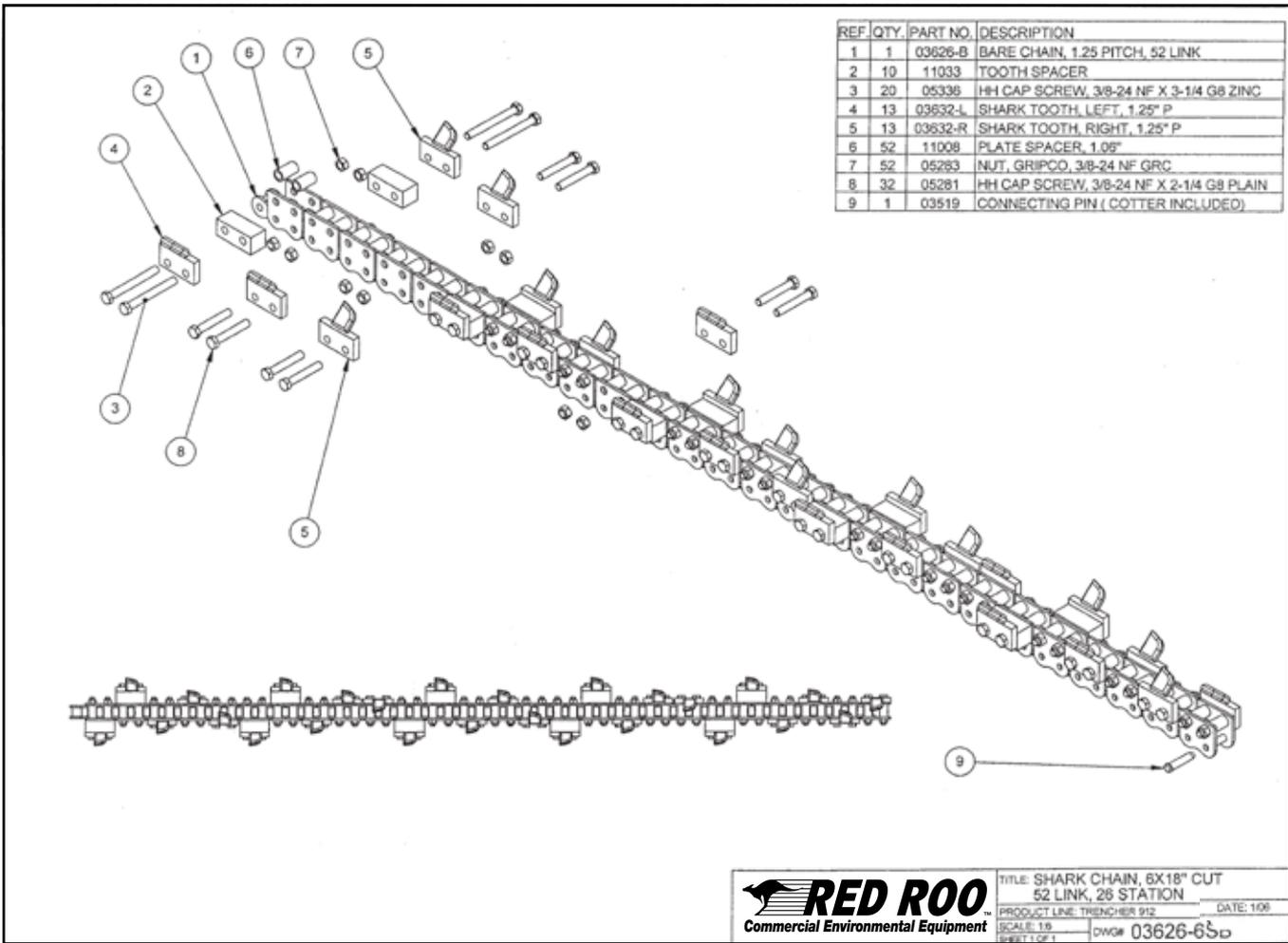
TITLE: SHARK CHAIN, 4X18" CUT  
 52 LINK, 26 STATION  
 PRODUCT LINE: TRENCHER #92 DATE: 02/06  
 SCALE: 1/8" = 1" DWG#: 03626-4SB  
 SHEET 1 OF 1



| REF. | QTY. | PART NO. | DESCRIPTION                              |
|------|------|----------|--|
| 1    | 1    | 03626-B  | BARE CHAIN, 1.25" PITCH, 52 LINK         |
| 2    | 6    | 11033    | TOOTH SPACER                             |
| 3    | 12   | 05336    | HH CAP SCREW, 3/8-24 NF X 3-1/4 G8 ZINC  |
| 4    | 7    | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 5    | 7    | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |
| 6    | 52   | 11008    | PLATE SPACER, 1.06"                      |
| 7    | 52   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 8    | 6    | 03630    | CUP, LEFT                                |
| 9    | 16   | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 10   | 24   | 11010    | HH CAP SCREW, 3/8-24 NF X 2 G8 ZINC      |
| 11   | 6    | 03631    | CUP, RIGHT                               |
| 12   | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)         |


**RED ROO**  
 Commercial Environmental Equipment

TITLE: SHARK COMBO CHAIN, 6X18" CUT  
 52 LINK, 26 STATION  
 PRODUCT LINE: TRENCHER #92 DATE: 02/06  
 SCALE: 1/8" = 1" DWG#: 03626-6MS  
 SHEET 1 OF 1

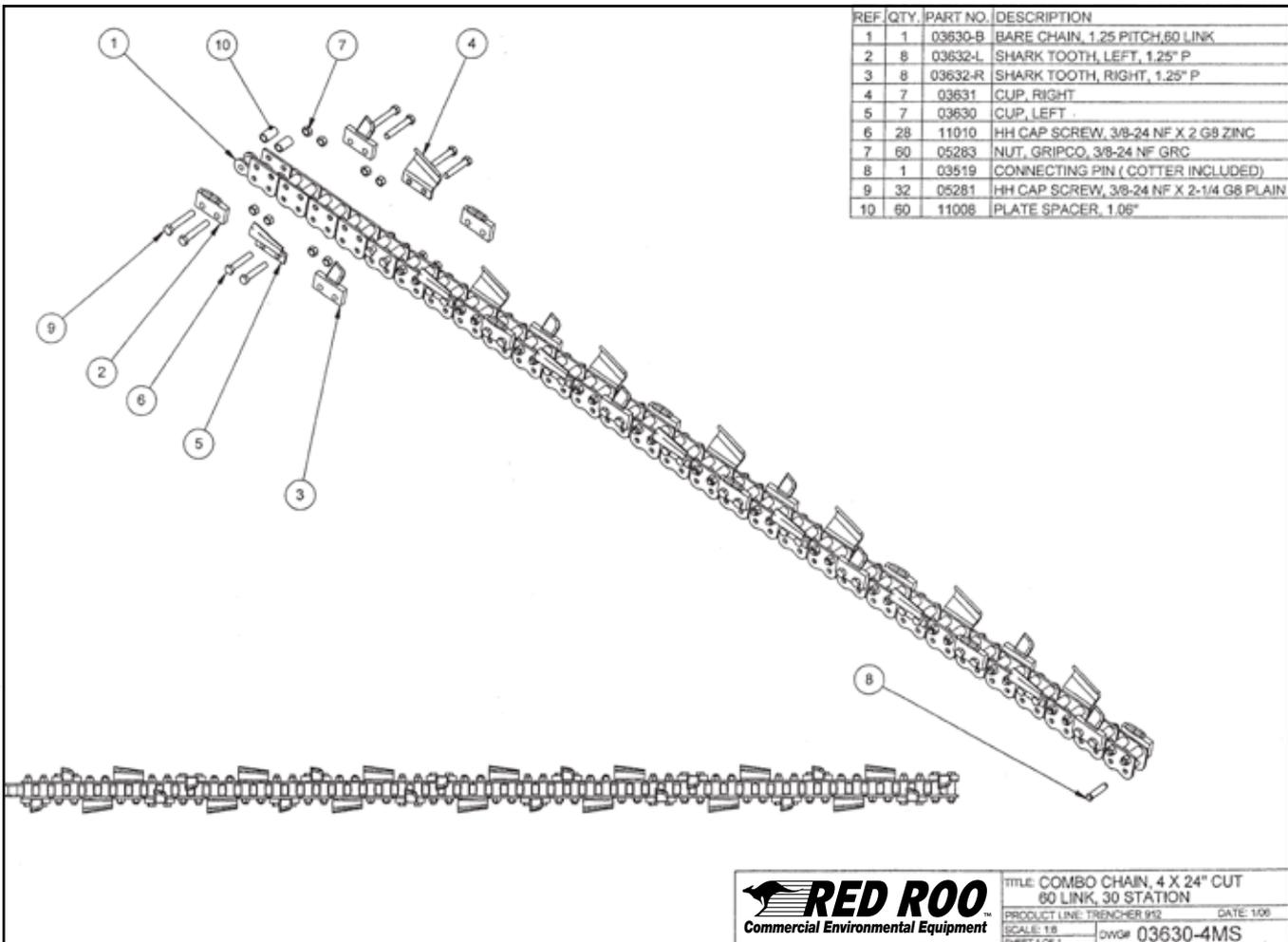


**RED ROO**  
Commercial Environmental Equipment

TITLE: SHARK CHAIN, 6X18" CUT  
52 LINK, 26 STATION

PRODUCT LINE: TRENCHER 912      DATE: 108

SCALE: 1:8      DWG# 03626-6SD



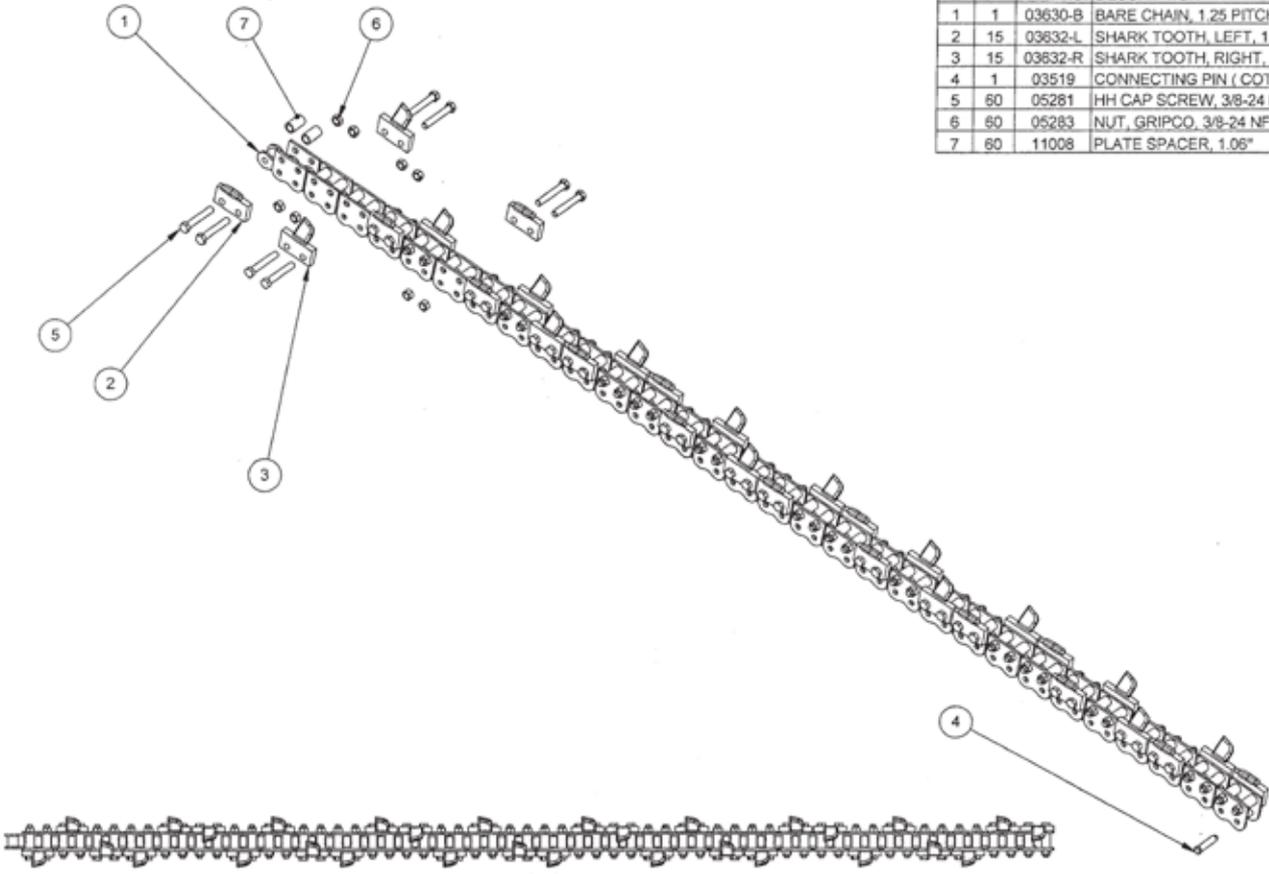
**RED ROO**  
Commercial Environmental Equipment

TITLE: COMBO CHAIN, 4 X 24" CUT  
80 LINK, 30 STATION

PRODUCT LINE: TRENCHER 912      DATE: 108

SCALE: 1:8      DWG# 03630-4MS

| REF. | QTY. | PART NO. | DESCRIPTION                              |
|------|------|----------|--|
| 1    | 1    | 03630-B  | BARE CHAIN, 1.25 PITCH, 60 LINK          |
| 2    | 15   | 03632-L  | SHARK TOOTH, LEFT, 1.25" P               |
| 3    | 15   | 03632-R  | SHARK TOOTH, RIGHT, 1.25" P              |
| 4    | 1    | 03519    | CONNECTING PIN (COTTER INCLUDED)         |
| 5    | 60   | 05281    | HH CAP SCREW, 3/8-24 NF X 2-1/4 G8 PLAIN |
| 6    | 60   | 05283    | NUT, GRIPCO, 3/8-24 NF GRC               |
| 7    | 60   | 11008    | PLATE SPACER, 1.06"                      |



TITLE: COMBO CHAIN, 4 X 24" CUT  
 60 LINK, 30 STATION  
 PRODUCT LINE: TRENCHER 912 DATE: 109  
 SCALE: 1:8 DWG# 03630-43B  
 SHEET 1 OF 1

| 912 BOOM INFORMATION   |            |                |              |
|--|------------|----------------|--------------|
| <b>12" BOOM</b>  | <b>OLD</b> | <b>CURRENT</b> | <b>PART#</b> |
| LENGTH   | 15.25"     | 14"            | 10316        |
| LINKS  | 45"        | 43"            |              |
| STATIONS   | 23         | 22             |              |
| GUARD  | 25.75"     | 25.75"         | 10325        |
| <b>18" BOOM</b>  | <b>OLD</b> | <b>CURRENT</b> | <b>PART#</b> |
| LENGTH   | 20.25"     | 19"            | 10649        |
| LINKS  | 53"        | 51"            |              |
| STATIONS   | 27         | 26             |              |
| GUARD  | 30.75"     | 30.75"         | 10650        |
| <b>24" BOOM</b>  | <b>OLD</b> | <b>CURRENT</b> | <b>PART#</b> |
| LENGTH   | N/A        | 24"            | 10865        |
| LINKS  | N/A        | 59             |              |
| STATIONS   | N/A        | 30             |              |
| GUARD  | N/A        | 35.75"         | 10866        |
| <b>NOTE:</b>   |            |                |              |
| Measure boom from extreme back edge near sprocket out to the center of the chain roller bearing. |            |                |              |

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## PRODUCTS

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[Stump Grinders - Up to 250hp](#)



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## and explore our **PRODUCTS**



Superseding Warranty  
**Red Roo Group of Companies**  
Warranty Policy  
effective January 1, 2013

**Replaces all undated previous Warranties and all Warranties dated prior to January 1, 2012.**

"For a time period shown below from date of purchase, pending owner registration, Red Roo Sales & Service Company, P/L, herein referred to as "MANUFACTURER", will, at its option, repair or replace for the original purchasers of new Red Roo equipment, free of charge, any part, or parts of the unit (excluding Power Unit, warranty coverage provided by respective engine manufacturer), found upon inspection and testing by a Factory Authorised Agent, or by the Factory at Keysborough, Victoria, to be defective in material or workmanship or both under normal operating conditions; this is the exclusive remedy. All transportation charges on parts submitted to the MANUFACTURER for replacement under this Warranty are the responsibility of the purchaser.

This Warranty shall not apply to any product that has been altered, modified, or operated in a manner not approved or recommended by the MANUFACTURER. Warranty will be null and void in the following circumstances: (1) repairs or attempted repairs have been performed by persons other than agents authorised by the MANUFACTURER; (2) repairs are required because of normal wear; (3) the unit has been subject to abuse or involved in an accident; (4) misuse is evident, such as that caused by an application that unit is not intended to perform.

The MANUFACTURER reserves the right to modify, alter, or otherwise improve any product or part.

The purchaser is responsible for the performance of regular maintenance services as specified in the operator manual applicable to the unit. Untimely and/or improper care and replacement of normal maintenance items (eg.: filters, belts, drive chains, blades, knives, lubricants) may void Warranty. Use of non genuine Red Roo parts may void Warranty.

THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO 14 DAYS FROM PURCHASE, AND TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. RED ROO GROUP OF COMPANIES DOES NOT AUTHORISE ANY PERSON OR ENTITY TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH ITS PRODUCTS OR SERVICES. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state."

Red Roo Sales & Service Company, P/L  
James A. Kerr III  
Managing Director

Warranty Period

|               |                           |                            |
|---------------|---------------------------|----------------------------|
| All Equipment | Consumer Use*<br>365 Days | Commercial Use*<br>90 Days |
|---------------|---------------------------|----------------------------|

\* For the purposes of this warranty policy, "consumer use" shall mean personal residential household use by the original retail consumer. "Commercial use" shall mean all other uses, including use for commercial, income producing or hire purposes. Once a unit has experienced commercial use, it shall thereafter be considered as a commercial use unit for purposes of this warranty policy.

**Proper registration of your Red Roo equipment is required to obtain warranty service. It is the responsibility of the original purchaser to register equipment within 10 days of purchase.**

**USE ONLY GENUINE RED ROO PARTS**

**safety**

**IS EVERYBODY'S BUSINESS**

**...now**

*You alone know the operational demands and special conditions affecting the equipment in your situation and therefore assume the responsibility for developing, carrying out, and enforcing the safety concepts which apply to your own operation to effect the greatest safety for yourself and the people around you.*

 **RED ROO**™  
**Commercial Environmental Equipment**